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LUCIUS ROBINSON,

GOVERNOR OF NEW YORK.

THE portrait indicates a man of very solid and substantial organization. He should be healthy, vigorous, strong, enduring in body, and capable of maintaining

a state of physical and mental soundness to old age. Few men of his years are as young as he in appearance and mental manifestation. His physiology shows more of harmony and strength, however, than of quickness and elasticity; more of that sturdy endurance that can hold out to the end, bearing its cares and burdens grandly, than of those qualities which are brilliant and attractive. As a lawyer he should be emphatic rather than animated in speech; and more sound in logic than showy in rhetoric. His observing organs are fairly developed, but his strength of mind lies more in the reasoning department of the intellect. He ought to be successful as a mathematician, and sound and forcible as a writer or speaker.

He sees the mirthful side of subjects, and in argument is very much inclined to dwell on the absurdity of that which he rejects or opposes. He copies readily, conforms to usage, and glides into the habits and methods of those by whom he is surrounded. He has Agreeableness, or the desire to make himself acceptable to people, and will have many personal friends outside of his special alliances. Men not of his political or religious faith, and those outside of his professional associations, become his friends.

His social nature is strongly marked; and those whom he chooses to select as friends, and on whom he inclines to bestow his friendship, become steadfast friends, and will stand by him through thick and thin.

He has more of the tendency to be just than to be lenient and liberal. He is cautious; inclined to be conservative. He has more sturdy strength and bravery of purpose to hold on and worry out his opponents than he has of tact and address to take and maintain the lead. His Combativeness gives him a relish for opposition, while his Destructiveness is strong enough to make him severe if once decided upon a course of action. He is not one who would be likely to mitigate punishment through sympathy.

He has mechanical judgment, and would succeed in mechanical science, such as engineering, architecture, and invention.

He would succeed as a financier, having large Acquisitiveness, and a strong natural sense of economy. Every dollar of his has to bring back, in some way, what he considers to be a dollar's worth of service. And he can understand the science of finance, and is likely to take an unswerving course in reference to money matters. If called to be the receiver of a bank, or of an estate, he would always aim to understand the merits of his position, and insist on obedience, by all persons concerned, to the rules of law and fact in the case. He would be a stern adjudicator of financial matters. He has courage and strength of character enough to raise him above considerations of fear. Browbeating and noisy opposition would not make him mellow beyond his sense of duty if he were on the bench, or occupying any place of responsibility and authority.

The following sketch of the Governor's career is supplied by a well-known contributor:

One pleasant afternoon in March, 1858, the writer paid his first visit to the editorial rooms of the *Evening Post* in quest of employment. Passing by the door of a somewhat dingy, unoccupied room, his eye was attracted by a dingy strip of tin on which was the half-illegible name, "L. ROBINSON." That "sign" remained for years; perhaps as a sort of talisman—such as a New York City newspaper greatly needs. The election had been held in November, 1859, and we were writing at the rude shelf, which served as our table, when there entered "a darksome man" of serious, but agreeable expression, who briefly introduced himself, and then remarked that a telegraphic message from Elmira had informed him of his election to

the Assembly of New York. This was LUCIUS ROBINSON. The matter was duly paragraphed, and the name placed in a list of "Assemblymen Elected." The acquaintance thus begun was renewed at Albany, a few weeks later; developing on our part into a profound admiration and esteem, which familiar acquaintance for a period of years only served to deepen.

Lucius Robinson, the Governor of New York, is, indeed, of "the bluest blood of the Puritans." His lineage is traced by his biographers from the Rev. John Robinson himself, the pastor of the congregation that sent the first colony of Pilgrims to Plymouth. This is easy for any one to believe who ever had opportunity to observe the Ironside character exhibited by the first citizen of the Empire State. Mr. Robinson was born November 4, 1810, at Windham, in Greene County. He received the usual education at the district school; and entertaining some ambition to "strike out" for himself, he afterward entered the Delaware Academy, at Delhi, N. Y. He paid for his tuition and other expenses in the old-fashioned manner by earning money at school-teaching in the winter. He then began the study of the law in the office of the celebrated Erastus Root, completing his reading with the Hon. Amasa J. Parker, and was admitted to the bar in 1832. He commenced practice in 1833 at Catskill, and the same year was married to Miss Eunice Osborn, of Windham. His career appears to have been prosperous from the first; besides, he was always a hard worker, thrifty, frugal, and inflexibly persevering. He was an ardent Democrat, and Gov. Marcy appointed him District Attorney of his native county. With the change of politics in 1839, he was replaced by a Whig and soon afterward became a resident of the city of New York. In 1843 he was appointed by Gov. Bouck a Master in Chancery, and three years later was reappointed by Silas Wright. The adoption of the Constitution of 1846 abolished the office. Mr. Robinson continued in the diligent prosecution of the law in New York till 1855, when his health became impaired by overwork and the unwholesome influence of the climate of this city. He removed to Chemung County and engaged in practice at Elmira.

He had long been on intimate relations with Samuel J. Tilden, Wm. C. Bryant, Lorenzo B. Shepard, and other leading men in Democratic politics. In 1848 he acted with these men in the Free Soil movement; and when in 1856 the "Democratic-Republican State Convention" resolved to co-operate with the Republican party, he was one of the number. In 1859 he was elected to the Assembly, receiving a vote flatteringly increased beyond that of any other candidate; and was a prominent member of the Legislature of 1860. He made an able speech against the bill to compel the trunk railroads of the State to fix their rates of freight *pro rata*, and another against the New York City railroad grants, by which absolute title to certain streets were given to private individuals, without due guards and restrictions. The grants passed the Legislature; several of them receiving the approval of Gov. Morgan, while others, being vetoed, were by arrangement enacted by the Legislature. Mr. Robinson was again elected in 1860, and was supported as a candidate for Speaker. He failed, however, through bad counsel of certain of his supporters; the opposing caucus candidate, Mr. Littlejohn, having the support of all the jobbers and other interests represented by the Whig portion of the party.

His career that winter was the earnest of his future. The first day of the session he introduced the famous Robinson resolutions, to reconcile the difficulties then existing in the nation. They proposed the division of the public territory of the United States into two States, the inhabitants of which should settle the question of slavery for themselves, outside of Congress. His friends who had supported him for Speaker deserted him in this matter, about which he had not consulted them; and he defended it alone, in a masterly speech. He predicted war, the desolation of the country, a prodigious destruction of life, widespread ruin, grinding taxation, a depreciated currency, general demoralization, and finally an adjustment by compromise very similar to what was refused at the outset of the rebellion.

The same winter Mrs. Robinson, whose health had long been feeble, finally succumbed; and domestic bereavement was added to his other perplexities. But he shrank from no duty. "That man," said Harry Arcularius, of New York, who sat next to him, "that Lucius Robinson has not a thought or wish but what is for the good of the country."

The Southern States seceded, and the Federal garrison was attacked and compelled to evacuate Fort Sumter. The news reached Albany on Sunday. The same day Mr. Robinson prepared a bill for raising troops, and placing $3,000,000 at the control of the Governor for the purpose. To obviate parliamentary evasions, it was reported on Monday in the Assembly and speedily passed both Houses by an almost unanimous vote. "The day of compromise has passed," said Mr. Robinson, as he arose to support the bill. "The question must now be decided by the arbitrament of the sword. Till this is accomplished, I will belong to no political party. I will know no party but the party of the country."

The ensuing autumn, a "People's Convention" met at Syracuse, and nominated a State ticket, making Mr. Robinson the candidate for Comptroller. He received a majority exceeding 108,000; a majority never paralleled in the history of the State in any contested election. The Republican Convention of 1863 ventured to propose another candidate, but he declined, and Mr. Robinson was again chosen. The next year leading Democrats tendered him their nomination for Governor. Mr. Robinson, however, declined, although his election was morally certain. The next year he became president of the Widows' and Orphans' Life Insurance Company, and contemplated withdrawal from public life. The Democrats, however, nominated him for Comptroller without asking his consent; at the same time choosing Gen. H. W. Slocum, another Republican, their candidate for Secretary of State. The ticket, however, was not successful. Perhaps Mr. Robinson himself contributed to that end. Unexpectedly to the men who nominated him, he wrote a letter of acceptance. He exhibited in it his strong affinities for his former political associates, and that he regarded the Republican leaders as men destitute of the proper patriotism and statesmanlike character, if not outright mercenary and corrupt. He foresaw the impending relaxation of the bonds of civil society, the general demoralization of the people, and the consequent inevitable disaster.

But he was not suffered to remain many years out of public life. In 1871 he was appointed by Governor Hoffman a member of the Commission to revise the Constitution of the State. It was the most eloquent testimony to his merit that the amendments, although often revolutionary to the previous policy of the State, were all of them ratified by prodigious majorities; and by an almost poetic compensation he was in turn the first Comptroller and Governor elected under their provisions. In 1875, at the instance of Governor Tilden, he was, for the fourth time, made a candidate for the former office; and in 1876, became the Democratic candidate. He made no canvass, not even a speech, yet his majority exceeded 50,000, and in most of the counties he received a larger vote than Mr. Tilden.

Few Governors of New York have ever possessed a higher reputation for personal and official integrity. His administration of every trust devolved upon him has been characterized by an obstinate integrity and fidelity. He is a man whom the thieves hate. His personal attachments are earnest, persistent, but never very demonstrative. He is the plodding man of business, apparently with little sentiment or romance, yet almost literally brimful of both. He seems hardly to notice the faults of his friends; and we fear we must add—to perceive the virtues of his adversaries. His tastes are domestic, and he is happiest in his own home. He would not, knowingly, perform a wrong or unjust act; but is, nevertheless, decided and resolute in his judgment and action. He is totally destitute of the craft and dexterity of the demagogue. How he ever became a public man, is a question we would like to hear answered; it certainly was by no art, finesse, or other measures peculiar to politicians. We imagine it

must have happened because of his zealous earnestness of conviction, his untiring industry and fidelity, which made him observed by his fellow-citizens at times when he knew it not. W.

NEW YORK, *March*, 1877.

EGOTISTS.

HOW few who have formed some plan and have fallen in love with its outline, mirrored on the bright clouds of the future, take the trouble to consider what has become of the similar plans of other people. They can learn by no one's experience but their own. No matter what the course of their life, they can not believe it can prove a failure until it has proved a failure, and they do not believe it then, either. The boy spends his strength and wastes his rich patrimony of mind and body sowing his wild oats, and hopes that somehow or other a waving harvest of the wheat of successful, happy, honorable manhood will be the result. The man abjures mental culture and recreation and the comforts awaiting him at home, and lives without a thought beyond how to put a dollar on top of that last one he got hold of, and has some kind of a hazy hope that sometime or other the pile will be so big that it will be comfort enough for him to look at it and do nothing else. The boy sees those who have sowed as he is sowing, and they are reaping of the flesh corruption, reaping the whirlwind. The man sees those whose pile is bigger than anything he hopes ever to reach, but the sun seems never to shine on their face, and avarice gnaws their very heart. Yet the boy or the man can not learn any lesson from this. They admit all the evil that befalls their neighbors. They can look even with cheerfulness upon the misfortune of others, and trace these misfortunes to the folly or vice of those whom they afflict; they can see the weak points in all schemes in which they are not themselves concerned. They are able to believe that the most dreadful things will happen to their fellows, and they can bear it without murmuring, but they can not believe that these misfortunes will befall themselves. As men believe all men mortal but themselves, so they believe of all the dearest objects of their affection, whether these be blood-relations, money, favorite pursuits, or schemes.

There is a grain of benefit in this "looking at our own things and not at the things of others." As the sun can gild with some beauty the tamest landscape, so the sanguine temperament is needed to cast a bright glow over the sober-tinted, monotonous, or dark pathway of life. If human nature were not sanguine, the chances are that more persons than now do so would decline any longer to attempt to bear the burden of life. As it is, we endure uncertainties and troubles with equanimity because we wish, and then hope, and then believe, that in the future all the clouds of our existence will clear away and give place to a glorious, revivifying, and everlasting sunshine. That we go on hoping and growing older without the good time coming, and that the prizes which have tempted turn out to be always disappointing, and often bitter to the taste, does not cause us to lose faith in our own particular star of fortune. Nor does the fact that we plainly see day after day that our neighbors are longing for the impossible, and hoping for what they will never get, cause us to question the soundness of our own imaginings.

Now, in proportion as any one is thus a profound believer in himself, he is an egotist. The man who has this quality highly developed, complacently believes in all his words and actions, their present beauty or rectitude, and their future happy results. Some of this class go in strongly for religion, especially in the form of a retributive or a benignant Providence. Mr. Egotist, if one of his children or chickens dies, if the Savings Bank he patronizes breaks, if a sneak-thief appropriates his hat from the hall, or his umbrella mysteriously disappears, if his potatoes or wheat are not half a crop, if some one cheats him of one dollar or a million, or he fails in trying to cheat some one

else, in any misfortune which befalls him, sees piously naught but the chastening hand of an approving Deity, who thus recognizes his merit—as, we suppose, a diamond may feel complimented by the hard usage to which it is subjected in polishing; since if it were not a diamond, no such trouble would be taken with it.

But if any of these woes fall like a hail-storm upon his neighbors, he takes quite a different view of the affair. It is now *a judgment;* he had always been afraid something of the kind would happen. He is very sorry for his neighbor, but it was only natural his son should turn out badly, with such an example and training as he had at home!—if he doesn't go to meeting once a month, who can wonder that half his cows should die in one year! He refused to lend neighbor Egotist that fifty dollars last week, how natural that he should lose it now!

A great many of this family connection, while firmly persuaded that through their superior merits they will take their places in Heaven, are just as firmly assured that a good many with whom they are acquainted, and whom they will be happy to name to you under such interesting circumstances, will howl and blaspheme in another place, and though they turn up their eyes and heave a comfortable little sigh, they are really more than cheerful under this belief, and dilate on the subject with much gusto. Now we admit that a good deal of pity ought to be mingled with the reasonable contempt with which we regard such sentiments, because such persons are only true to their own natures; but yet it would be well if men and women could be induced to believe that there is no reason why they should be more exempt from the ordinary law of probabilities than their neighbors. How many people there are whose religion is practically Fatalism, and who would be horrified if a suspicion of that fact should dawn on them. They are incapable of containing two ideas in their mind at once, or indeed more than an inconsiderable fraction of any ordinary-sized idea, and having a belief in the important doctrine of a Special Providence, they unconsciously come to believe there is a Divine Providence which considers some parts of their life more valuable than others, and has for some people (by some occult principle of selection which they would find it difficult to define) more care than for other people. Such a false way of thinking makes people calmly and stupidly self-sufficient, and causes them to act foolishly and wrongly. It fosters Phariseeism, and makes people, as they walk through life, gather round them their skirts and coat-tails in the stand-apart-I-am-holier-than-thou style. Its victims will be found ready to condemn whatever their friends do; but whenever the critics do the same things, their actions seem to themselves beyond the range of anything hostile, except the most ill-natured criticism. An example of this may be found in English History. During the struggle between Charles I. and his parliament, Clarendon was at first on the side of the patriots, but afterward came over to the king's side. In his "History of the Great Rebellion" he paints the patriots as sober-minded, honorable, and discerning, while he acted with them; but from the time he left them they became a pack of God-forsaken miscreants.

The people who have the fullest belief in themselves are the most uncharitable people living, and there is nothing more difficult than to persuade them to plead guilty to the charge. It would not be strictly correct, perhaps, to say that they have little charity in their natures; but the trouble is, that however great may be their stock of *forgiveableness* or appreciation of goodness, it is all needed for home-consumption. They look with such benignant indulgence upon themselves that they have little of this indulgence to spare for others. They are very ready to appreciate goodness; but like pennies placed on their eyes, their own goodness covers all their vision and prevents their seeing the great expanse beyond. Apparently, their belief in themselves renders them incapable of believing in any one else. Here is my friend Tompkins, for instance. He is firmly convinced that his motives in his different spheres in life are perfectly pure and honorable; that he is an unadulterated patriot; that he is a man of many excellent parts and talents; and that alike

in his private business and public capacities, he acts in such a manner that he is bound sooner or later to become honored, prosperous, and completely happy, as he deserves to be. At the same time he is utterly unable to do justice to his friend Robins. When the aforesaid Robins electioneers for incorruptible men for town-officers, or lends money to an anxious business man to tide him through a tight place, or becomes zealously interested in some reform of neighborhood importance, Tompkins' gimlet-eyes can always bore beneath the surface and find some secret and not very reputable motive for Robins' energy. Robins always has some private axe to grind, he is sure of that. Now all that Tompkins really knows is that Robins' actions *may possibly* be accounted for in his depreciatory way, and, regardless of all probability, he at once leaps to the conclusion, and considers every one a credulous fool who ascribes to Robins any higher motives. But if Tompkins himself should do the very same thing as Robins, and in the same way, and people should judge him as he has judged his friend, he would think himself cruelly ill-treated, would fall back on his virtue and piteously wonder why he was ever born. Again, when Robins is fast piling up money, even in hard times, and is called "the lucky man," you will hear Tompkins grumbling, "Yes, he is rich; but how has he become so?" hinting that Robins' business, or at least his way of doing business, is not the most honest in the world. At the same time you need not be in the least astonished if in six months or less you see Tompkins embarked in the very same business, and carrying it on in the very same way, only perhaps scarcely so straight. And you do not know Tompkins as well as I do, if you are surprised to hear from him that this business, so far from being of a discreditable character, is of the most worthy character. The more he shuts his eyes to his own failings, or threatened misfortunes, the more he recognizes the failings of others. He has very little doubt but that Robins is living beyond his means. With a pleasant groan he tells you that his friend's son will be sure to be hanged, and that his daughter is consumptive. Every now and then Robins hears of some of these innuendoes and depreciatory utterances of this busy-body. He naturally feels aggrieved, perhaps offended, and then Tompkins raves worse than ever about his ill-nature, and taking offense for nothing.

It will frequently be found that the egotist discerns in others no spots so readily as those which mark himself. The man who can entertain you half a day with the names of those who are financially on their last legs, will very often be found to be in very close circumstances himself. The fox who lost his tail in the trap would be glad to induce all his friends to a like abbreviation; but if this may not be, he will circulate the story that many other foxes of his acquaintance have no genuine tails, only sham ones, or that at the most they are very short. Now it is a great pity that Tompkins will act in this way. Perhaps he can not help his beliefs, and if not, he must have an uncomfortable life. But he has no right to talk up his gloomy notions. Even supposing all his surmises are truth, what good results from their statement? He may have a ghoulish delight in dilating on Robins' *faculae*, but he will wake some day to the consciousness that he is a ghoul, and even the ghastly delight he feels is impossible for Robins' friends. He ought to try, at any rate, to take as cheerful view of others' misfortunes, and as lenient a one of others' actions, as he does of his own. We shall very often be right in reckoning among our own besetting sins those at which we feel the most indignant in others. Those who are addicted to accusation are generally themselves accused. The professional fault-finder is not a reformer, is not even desirous that the causes for fault-finding should cease. It is to be feared that some people are so given over to the idea that they are exempt from what must happen to their fellows, that it will be a long time before censorious prophets of ill omen will cease to exist.

GEORGE C. JONES, A.M.

DEAK, THE HUNGARIAN STATESMAN.—A great and simple man died when Francis Deak passed away. He was practical where

Kossuth was the creature of sentiment. He would have been glad to make Hungary into a republic, but he was content to make her a joint member of the new Austro-Hungarian Empire. He died poor, as he had lived; rejecting all gifts of money and titles, whether offered by the Emperor or his admiring friends. He is the Washington of Hungary. He would accept no lucrative posts or hold any public offices. His expenses were but a thousand dollars a year, which he derived from a small landed estate. When the Emperor invited him to wait upon him, he went in a one-horse cab and his plain, every-day clothes; but he was Hungary, and would have been received in his shirt-sleeves. He refused to accept a carriage which his admirers purchased for him, but rode to the parliament house in the public omnibus. He lived poor and died poor, but there is no man in all Hungary who does not worship Deak's memory.

Our Country and Its Resources.

That which makes a good constitution should keep it, viz., men of wisdom and virtue; qualities that, because they descend not with worldly inheritance, must be carefully propagated by a virtuous education of youth.—*William Penn.*

THE GREAT PLAINS.

NO creature, exclusive of the African lion and company, can, without crossing its desolateness, gain any just conception of the vastness of area lying stark under the scorching summers and tempestuous winters between the populous East of which Plymouth Rock was the threshold, and the newly-opened country, with its wonderful resources, known as the Pacific slope. The "Great American Desert" of but a generation ago is sometimes written down a myth, I can hardly tell why, except it may possess a hidden life—certain elements of progress susceptible to human intelligence and enterprise not contained in the torrid sands of Sahara. Whoever, after having traversed this intermediate territory, can pronounce it other than desert, would seem at most to utter a prediction for the ages to fulfill.

Beyond the dead level extending on either side the Father of Waters; beyond the rolling prairies of Iowa, like an ocean petrified in the midst of a great storm; beyond the bluffs of broad Nebraska, where, if ever, broken surface and pines, sparse and stunted, bring relief to the eye, we, by degrees, emerge upon an almost illimitable tract, apparently remaining unorganized from the chaotic stage of the world. Before a human work so far advanced, yet so utterly incomplete, you would look about you for the tools of the artisan, where he flung them down to go to dinner, perhaps, and through some mischance never returned to renew his task.

There has no breath of life been breathed into it, whose inspirations should heave its bosom into hills and dimple it with valleys to invite water-courses which, like settlers in a new section, would send for their old neighbors, the trees, which would furnish an orchestra for the birds, which again would sow flowers, and thus the wilderness be redeemed for the use of man. Your eye can not solve the problem of how anything finds encouragement and support, where, indeed, animal and vegetable kingdoms alike, through the lapse of unknown centuries, continue in a rudimentary state. Herds of bison, deer, and antelope range these forbidding precincts, of which wolves—the large, gray species whose powerful front and fierce nature assimilate him to the lion, and the smaller and numerous coyotes, that, jackal-like, follow in packs to sit at the second table, are the chief resident landholders. The absence of bird life is a more noticeable dreary feature than at first might be imagined. Cleav-

ing the upper air may be seen the swift wing of hawk or eagle bearing him to his distant haunt; but no lowly nest, no whir of azure pinions or visions of a golden breast, chirp, or song, relieve the solitude around.

Of vegetation, the sage-bush and grease-wood have the monopoly, if that can be called monopoly where little else contends for existence. The latter is of woody fiber, with a very diminutive dark-green leaf; a kind of coyote, contemptible enough in detail, hideous only in the aggregate. With the former shrub, prominent in every description of the plains, I was eager to make acquaintance. My note-book chronicles the culmination thus: "I came, I *smelt*, IT conquered." This sage-bush is mighty among herbs, the gray wolf of all salvias. Botanizing is needless; one intuitively places it as a cross between wormwood and skunk cabbage. Whoever would adopt for a lapdog the quadruped of which the latter plant is namesake, would be able to preserve the sage-of-the-plains as a souvenir. The more it dies in your hands the more it lives in your nostrils. If ever I was heroic—I would

Fig. 1.—Sunrise on the great Laramie Plains.

not boast—it was when I kept over night a sprig of sage-bush which a Western judge, my old schoolmate, had been at pains to pick for me in my first enthusiasm. I parted from my specimen with equal disgust. I smelled it but a moment (poetically speaking), yet methinks I smell it now. Its scent clings to my traveling-bag a bitter memory, which nothing short of cremation could cure. It grows to the height of several feet, branching into a strong shrub, with foliage in color like garden sage, a dusty-miller, white-upon-green; plentiful, light and graceful, as its leagues undulate in the breeze; and there, if anywhere, long may it wave. It has to be extirpated before any other growth can succeed, which was the experience of the Mormon settlers at Salt Lake. To all appearance it is untouched either by grazing herds or by swarming locusts which not unfrequently pass in clouds to the frontier farms and devour to the last green leaf and growing stalk. Its odor is a better defense than even the spines of its neighbor, the cactus.

The latter plant presents itself in several varieties, one of the most common, the prickly pear, which is all leaves and without leaves, spreading in platoons of flat, fleshy joints, thoroughly armed with spinous clusters that sting the flesh they enter, and are withdrawn with difficulty, as witness men and horses engaged in our war with Mexico. Each leaf or joint strikes its roots into the soil, preempting another claim and sends out other leaves, and so on. In California, as along our Southern coast, this anomalous plant assumes the form of a tree. I saw them in the Valley of San José and San Rafael, the home of Bierstadt, from twelve to fifteen feet high, branching off in leaves three feet long by one wide, and an inch thick—not a foliage to be swayed by every breeze—with beautiful blossoms, like yellow roses, bursting forth freely at the edges in a show scarcely less surprising to unaccustomed eyes than bloom out of a bookshelf or a green baize door. Its fruit is a purple, edible fig.

Another, indigenous to the plains, is the rose cactus of our conservatories, but attaining a size that would astound private enterprise; a corrugated green ball, often a pile of balls large and small, like a mother opossum with her whole litter of young on her back, presenting a bayoneted front all around in myriads of white spines keen as steel. The pink-and-yellow rose, its blossom, is exquisite to the eye, but wastes no sweetness on the desert air. Like the camel, it carries its supply of water. Without their natural defenses, all would be despoiled in a single season for their succulence. The thirsty bison strikes it open with his hoof, applies his lips, still cautiously, and draws out the grateful beverage, leaving the robbed plant an empty bucket, a pulpy ruin; not always himself escaping the penalty of a wound and carrying away stings next those which torture a guilty conscience. At Teesdale, the last station before Cheyenne, the sombre little company's building, resembling a freight car with a window in its side, was ornamented outside and in with the few varieties of plants-of-the-plain for sale—primitive boxes holding cacti just unfolding their bright buds, and larger boxes the mountain pine, a dwarfish, stocky, knotty, coarse-foliaged species, the last effort of tree life. A plant *en solitaire* that makes itself conspicuous along the iron track by profuse clusters of yellow flowers, is introduced by the name of Yankee Girl. One of our travelers gave out this proposition: If a Yankee girl is so brilliant in the desert, what will she be in the gardens of civilization? Tufts and patches of coarse grass throw a tattered mantle over earth's nakedness, and suggest her possible redemption and subjection to the hand of man.

Such is the better portion of the great plains across which a quarter of a century since the emigrant and gold miner performed their long and perilous journey, following the trail of Indian and buffalo, followed in turn by the Pacific Railroad, one of the mightiest achievements of man in any age. On both sides of the Rocky Mountains, where the train conveys its daily quota of souls in comfort and luxury over the highest point on this continent, are tracts whose "curse for man's sake" has not been, in the lightest degree, removed, seemingly condemned to utter, hopeless, eternal sterility. There is

the alkali region, on which a plant could no more exist than in hot embers. The surface is rolled into levels or roughened into hummocks and crazy hills; the wind blowing hotly over it like the breath of a passionate giant, fills the air with dust very irritating to the skin, which has been likened to the lice of Egypt. Everywhere ash color prevails, varied only by lighter shades, blanched by the angry elements. The wolf stealing forth at nightfall blends in the universal hue, seeming but a moving lump of the bluff in whose caves he hides from the light of day.

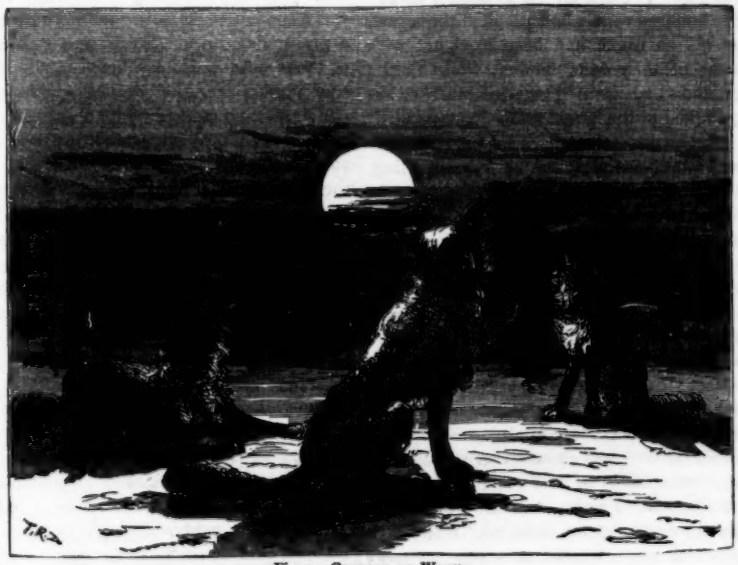


Fig. 2.—Coyotes at Work.

"I have stood on that ridge after sunset," said a gentleman still young, as we rushed past, "and counted fifty wolves which came out howling to usher in the night's raid. I used to drive stage here—in places you can trace the marks of wheels beside the track on our left—packs of wolves used to pursue us, half a dozen leaping upon the stage at once. I tried poisoning, they were so troublesome, and killed two hundred of the pests at a dash; but they were not missed, and I classed my endeavor with that of the old lady who thought to dry up the ocean with a mop. O-h! but you ought to hear them serenade once—just once. Wolves were not all we had to contend with. The last trip I made, we were badly frozen in a 'blue fog.' I lost part of my finger, as you see. A passenger was obliged to have one of his feet amputated. These blue fogs penetrate a man like a keen blade; he don't know his hurt until afterward.

"This Bitter Creek region is bitter every way. Horses drinking the water become 'alkalied;' I have often known one, after going sixteen miles, sold for ten dollars, which was worth one hundred and fifty at the start. Numbers of cattle of every drove are made sore-footed by walking over the alkali, and, sick and weak, give out among these beasts of prey. The wolves do not commonly attack full-grown cattle, healthy and strong; but if a sick animal is too long dying, they quit waiting around and help him out of existence. On horseback once I met a gray wolf square in the path through the sage-bush. I've never forgot the moment we stood confronting each other, then gradually moved apart.

"When the railroad was building I had charge of a station. One night a man, coming through with his team, had the luck to get one of his horses down in the creek. It was a cold night. The animal was gotten out, but died directly. The man mounted the other and came on to the station and wanted me to take a lantern and go up and secure the harness of the dead horse. I told him, however, I thought the wolves wouldn't get the scent the first night. Next morning I went up and found my mistake, for only a few glistening bones and shreds of leather told where the meat and tough salad had been eaten. From all appearances I judged five hundred wolves had attended the repast, which, as usual, had been eked out with some of their own number, while all the ground had been ploughed and cross-ploughed in the horrid mêlée."

Another traveler tells his experience: "I was out on the plains with a friend hunting. We fired into a herd of deer and brought down one apiece. Smith's, though, went just over a knoll before falling, so that as we proceeded to dress our game we were out of sight of each other, but within call. It was about dusk. The wolves began to appear; they multiplied fast, getting bolder every minute, till I could hardly keep them a few paces off. I shouted to Smith, 'Hallo! any wolves over there?' The answer came back, 'Wolves! There's nothing *but* wolves.' Well, we each had as much as we could do to prevent the meat from being seized under our knives. Finally, having secured our piece, we gave up the remainder, which was pounced upon by the snarling, ravenous crew, and the bones scraped and crunched, even in the blaze of the fire by which our supper was cooking."

Nor are bears unknown. It is more than enough to know of these biding in secret, while for buffalo and antelope there is a general lookout from each passing train. The coming "through-passenger" will see neither, but so far they do not disappoint the watchful eyes. Their appearance, if repeated many times a day, never fails to create a sensation. Antelope are as yet quite numerous, but are oftenest seen flying from the train, perhaps just disappearing in a bank of morning fog, so that the exhibition is not all you could wish. Patience! My note-book and memory record that "this morning seven antelope appeared on the summit of a ridge to our left, distant thirty rods, singly outlined against the sky, taking no alarm, but watching us as curiously as we them."

One other animal deserves a passing notice. It is the cunning little prairie dog. My interest in these inhabitants of the Western plains began with reading "Marcy's Explorations," when little dreaming I should one day go over and give them a call. Just before arriving at Cheyenne there was a sudden excitement—we were passing a prairie-dog town. Scores and hundreds of their strongholds lay between the iron track and a near bluff running parallel on our right, each marked by its depressed circular mound of earth brought up in excavating. The plucky little canines, sitting on their thresholds, so to speak, bark vehemently at the approaching engine; and so accustomed are they to its regular passing, that many of them hold on, and when relieved believe, no doubt, that they have driven it away. It is extremely funny to observe those whose nerves fail them at last, turning over quick as thought and popping into their holes.

Many of these communities appear along the track; some have been deserted and the mounds are partly overgrown, as if the iron road had proved an inroad of civilization they were not prepared to accept. Here and there the petit wild dog's companion, the owl, posed stupidly at the opening, adds to the picture. The affinity between these feathers and fur has never, that I know, been explained. I incline to the opinion that the quadruped requires advice as to how he may get a living here, and the magnanimous bird of the staring eyes, emblem of wisdom in old Rome, forsakes his hollow tree to make himself useful in a hole in the ground.

Distance on these bare levels is very deceiving. The alkali bluffs, at a point beyond Green River, are eight miles from us; we should not have placed them above a mile. One feels like challenging creation to

produce a more desolate spot than this Green River Station, once a noted point on the route, now notable for deserted houses and breakfasts of blue beef and unchristenable coffee. The plain is strewn with stones and pebbles, precisely like those of a sea beach, which have been worn by the friction of the tides. If this was once an ocean bed, it has risen above the power of re-submerging, after the proposed plan concerning the Great Desert of the East. Not the remotest sign of vegetation meets the eye anywhere. The buildings stand buttressed by alkaline rocks in fantastic shapes. Desirous of scattering the influences of civilization along my pathway, I spare a leaf from my note-book, and having penciled "Keep off the Grass," *a la* Eastern park, post it upon a length of fence which the railroad company has set up as a memorial. Nothing can exceed the comfortable assurance I feel that my "Notice" will be obeyed.

The little river is clearer than any we have seen for days, not excepting the Missouri, locally known as Old Muddy. The discovery of these Western rivers *as* rivers, was a discovery indeed. The average discoverer, acquainted with mountain streams that "hasten to the sea," would doubtless have taken them severally for a rather extended pool from the contents of Bridget's Saturday scrubbing pail, or a semi-liquid species of the double-headed snake of ye time of Cotton Mather, which, according to Whittier's rhyming, the eminent divine "rode down to Newbury town" to investigate a creature that pulled in opposite directions and progressed in neither. These waters are even more totally destitute of life than the air. It is an excellent place for tender-hearted fishers, who don't want to hurt anything—of whom I am chief. Fishing here obviates all necessity for bait, which would be a strong consideration with the frogs and angleworms.

All night long on the rushing train, all day long the same—on, on, on; yet for any change of scene you might almost as well have been operating a treadmill. The barrenness which was itself a novelty, ceases to entertain, grows oppressive, and threatens to become intolerable. The welcome given each trivial incident shows to what straits people may be reduced for change. Our conductor snaps open the door and cries, "Look out!" With thankful alacrity the windows are besieged, but nothing appears. Is it buffalo? What?—where? The train slackens speed for Lookout station. "Sold!" and forthwith a jury—a woman's jury—is impanneled (this being Wyoming, where women sit on the jury, and to some purpose, for they brought in Guilty of Murder the first man they had to deal with) to

Fig. 3.—Twin Sisters, Green River.

decide whether our conductor was innocently calling the station, or whether he employs this as a regular subterfuge for keeping the passengers from mummying. Verdict for acquittal, with a recommendation to mercy. Another time this joke was reversed. The official call is "Antelope." A yawner responds, "Who cares? Carbon, Alkali, You Bet—it's all one." A chorus of yawns and, presto! quite a little late, we become aware that we are not coming to Antelope station, so much as we are chasing a herd. Another merry-making, to the extent the materials will allow; then another relapse, broken by a youth who, from protracted gazing out at nothingness, springs to his feet with extravagant gestures declaiming, "Greeley—'Go West, young man, go West!' This, sir, madam, is 'What I know about Farming,'" pointing to some sagebush and more alkali.

From this the young man going West and the writer of meagre notes fell into conversation. He had spent nine years in Montana and knew the country by heart. First he had been a miner; then, having made some money, he established himself in town as a cattle trader, "and," said he, "I did well—was making a fortune as fast as any man could argue for, but—"

"You are returning to fill the empty pocket?"

"Or else empty the full one. I'm going back to sell out and go home to the old folks in Minnesota, where I've been spending the winter." He laughed, and his face was very suggestive. "Fact is," he continued, "I could stand it no longer. It seemed to me high time that style of living was broken up, at any sacrifice, so I started."

"And have enjoyed yourself, I see."

"Oh, but I have! The spelling-schools and singing-schools—well, take a fellow of twenty-eight, that haint had a taste of them things since he was a boy, and they do pan out—they pan out big!"

"*Why doesn't she go back with you?*"

He looked at me and clapped his hands delighted. "Wouldn't stir a step. Declared she wasn't going out of the world to Montana for any man. Too bad! for I could have made my fortune in five years."

"Why didn't you refuse to quit a good business for any woman—tell her you would go without her?"

"I did, and she laughed at me; she knew better than I'd do it."

A stranger's regards to the bride elect; may she be always wise-willed, and he never less loyal-hearted, and may they be happy.

"What is home without a mother?" Nothing every way, and having freely admitted this, I interrogate, What is a Pullman car without children? Certain I am that no mortal traveler can answer from personal knowledge. Emigration and visitation ever consist largely in the rising generation, the phrase having no reference to our ascent of the Rocky Mountains. Children with their tender influences have been preserved from the days of stage-coaching, outlasting the past universal bandbox, after the "survival of the fittest." On the long routes they are seen and heard all day, and the latter "oft in the stilly night." Our first example is five years old, the son of an English widow going to her friends in California. A pale face, not restored from the deeper pallor of sea-sickness, makes his indomitable spirit the more to be admired, as hour by hour he runs a rattling green tin wagon and red tin horse up and down and upside down the car, looking defiance out of a pair of bright black eyes at a lady who has dared to hint that her headache might be solaced by a discon-*tin*-uance of his equipedestrian feat.

There is a family aboard comprising parents, two small daughters, and a kitten. The animal, though of very ordinary physical and intellectual endowments, with hair only less upright than cactus spines, is patronized outside its little circle—fed, poor thing! on Omaha chicken, of a quality furnished for travelers' lunches, and which, had it been suffered to continue alive, might by that time have been a clucking hen with a brood of its own. A lady saturates her handkerchief at the tank and essays to combat the dust coating her forehead; the result, as indicated by the hemi-stitched linen, is appalling; she takes an attitude and exclaims: "Why *did* I undertake it?" folds her hands and resignedly murmurs over to her-

self, "dust to dust." The ubiquitous traveler, who confides her determination n-e-v-er to come again, if e-v-er she gets home, is here also. She is always an amusing nuisance. All agree that we shall finally shake off a large testimony of dust against this region. A passenger inquires whether it is as bad in winter, and is answered by a veteran, "Oh, no." Disgusted traveler declares a winter journey the only endurable one. "But," quietly adds the other, "we were once snowed up ten days between Cheyenne and here, where we have now run in a couple of hours." Disgusted traveler prays that her flight may not be in the winter.

Cosmopolite is besought for a story of the plains; he denies any knowledge of any such. He was merely thinking about being here for the first time as one of an emigrant party, when Platte River had to be crossed by a ferry near Lone Tree, known as Shinn's. A preceding party quarreled with the proprietor, and ended by shooting him and destroying his raft, when they had gone over. Our informant's party arriving with a large "band" of cattle, met the emergency by constructing rafts of the wagon seats, and thus the wagons and contents were conveyed across. The cattle being forced to take to the water—it was summer, and the river swollen from the melting of mountain snow—were swept down some distance by the current and landed on an island, from which they were with difficulty gotten off.

At least, my sketch proves conclusively how devoid of variety and incident is a journey by rail across the plains. There is, however, I am bound to say, a bright side, and that I hope to present in a future number.

LAVINIA S. GOODWIN.

INSANITY IN THE UNITED STATES.

THE intelligent care of the insane, with a view to the restoration to health and society, is so recent that it may be dated, in the United States, in the present century. The time is even within the recollection of many now living, when faith in the curability of the disease became general, even among medical men. Upon the dawning of the belief that insanity was susceptible of cure, hospitals began to be built, for the two-fold purposes of custody and treatment; for, besides the difficulty of taking care of lunatics at home, it was found that comparatively few recovered. From this period hospitals began to be regarded as not only the best, but to most persons the only places for the insane. Hence an increasing demand for their accommodation; and though their numbers have multiplied largely, and have greatly increased in size, they are still inadequate to entertain all who knock at their doors and with piteous appeals seek admission. It is invariably found that when a hospital is opened for the accommodation of a given district, the applications for admission far exceed its capacity, largely outnumbering the statistics collected by the census-taker. The country seems suddenly thronged with insane people, and we are apt to be impressed with the belief that this dread disease is largely on the increase. But the probable fact is that no such increase really exists. It is not unnatural that, mainly out of family pride, the questions of the census-takers are often evaded, and the relatives of the unfortunate patient, seeing no benefit to come from revealing this "skeleton in the closet," keep it from observation. But, promptly, when an asylum is opened within their reach, free to all without pay, the curtain is drawn and they come forward with their afflicted.

That insanity does not increase, *pro rata*, at least in the United States, is proven by the census returns for the past twenty years. In 1850 this country had a population of 23,191,876, and a total number of insane and idiots of 31,397, or 1 in 378. In 1860, with a population of 31,443,322, there were 42,864 insane and idiots, or 1 in 733. And in 1870, with a population of 38,555,983, there were 61,909 of that class, or 1 in 623. In England, during the same period, there was an average of about 1 in 450; in Scotland, 1 in 460; in Ireland, 1 in 400; in France, 1 in 600; and in Australia, 1 in 524. These reports, if accurate, show a favorable condition in this country, as compared with that of others.

C. D. ROBINSON.

WILLIAM J. MULLEN,

THE "PRISONER'S FRIEND," OF PHILADELPHIA.

THE organization of this gentleman is of fine quality. There is a predominance of the vital temperament, with a good proportion of the bilious, however, which gives prominence to the nose, well-marked lines to the face, firmly closed, thin lips, and much positiveness of character. In stature he is rather below the medium, while the chest and abdomen are large and rounded. His head is in good proportion to the body —slightly above the average size—and his brain has the double advantage of exhibiting great activity when the mind is interested, and of possessing the power to rest and recuperate rapidly.

His mechanical ingenuity and great perceptive power are shown in the engraving, by the width of the anterior portion of the head at Constructiveness, and by the projection of the head at the eyebrows; but no picture, not even a photograph, can fairly represent the vivacity displayed in the countenance, when he is engaged in conversation.

His mind is remarkable for its sympathy and sensitiveness. Probably a finer example of these qualities can not be found than may be observed in the head and temperament of this gentleman, and they are accompanied with a high degree of energy, de-

rived mainly from the bilious element in his constitution, and so make him an efficient worker, as well as a man of feeling. He is keenly alive to every smile or frown, even a child's opinion will affect him deeply, and he must suffer keenly when opposed and maligned, as he often is by the vampires of justice, out of whose greedy hands he often plucks an unhappy victim.

His head exhibits no excess of either Self-esteem or Approbativeness; these organs are much smaller than Benevolence, which is as prominent an organ in the head as the faculty is in the character; but so deeply absorbed has he become in his work, and so zealous is he to be in perfect accord with those with whom he is in any way associated, that his work is an almost constant theme of discourse. This has, doubtless, been taken advantage of by his opponents, and may have caused a few well-wishers to underrate his motive, although his work can not but be approved by the philanthropical.

His sympathy is the one weakness in his business character. It was impossible for him to pass by the poor and wretched, to attend to a profitable business in which he might have accumulated a fortune; voluntary and single-handed benevolence, therefore, beginning with him, resulted in the creation of an office well suited to his sympathetic and philanthropic zeal.

The subject of this sketch was born at Lancaster, Pa., in the year 1805. At an early age he made his way to Philadelphia, where he became apprenticed to the jewelry trade, in which he rapidly rose, until, as a manufacturing jeweler and inventor, he was widely known by those engaged in the trade. It was for his invention of a process for the manufacture of gold watch-dials, in which he expended thousands of dollars and several years of time, that he was most widely known; and while engaged in this business, which had become the principal branch of his trade, he was limited in its extension only by the difficulty of procuring competent mechanics for such delicate and accurate work. To facilitate business, as he hoped, he removed to New York, and while there became interested in the subject of Phrenology, and was a subscriber to the course of lectures by George Combe, Esq., and an interested attendant upon them. At the close of the second course, it was proposed to present to Mr. Combe a silver vase, as a testimonial of gratitude and esteem for his lucid and elevating exposition of the new science; and a committee of four gentlemen was chosen to carry out this design. Every member of this committee of thirty-eight years ago, is now living, and all have been, or are now, men of wealth and power, each in his sphere. The subject of this sketch is, perhaps, more widely known than any other, and he is the only one who has not accumulated a fortune. He was delegated to select the artist and superintend the manufacture of the vase. This vase drew the prize of a gold medal at the Fair of the American Institute, in September, 1839, for its exquisite design and superior workmanship. Captain S. W. Dewey, who undertook the responsibility of raising the subscription of one thousand dollars for the vase, availed himself of the artistic skill and taste of Mr. Mullen in the production of a certificate of subscription of suitable design. His scheme was so successful, that all subscriptions were limited in amount, and much money had to be refused. The only lady subscriber to this testimonial was the wife of the late Hon. Horace Greeley, who sent word to Captain Dewey that she had a dollar she wished to go for that cause. When he called, she brought forth an old family keepsake, which she insisted upon his taking.* The ravages of fire reduced Mr. Mullen to the necessity of starting anew in business, and, not having experienced such advantages as he had hoped from his new locality, he returned to Philadelphia, where he was heartily welcomed by his old friends, and soon found himself re-established, with more orders for his watch-dials than he could fill promptly.

The liberal spirit of Mr. Mullen was early

* The silver of this dollar forms a part of the vase.

manifested in his business, by the adoption of the co-operative system, a system which resulted in giving to his artisans from twenty-five to eighty dollars a week for working only eight hours a day; and this system was continued for more than ten years to the satisfaction of all concerned, and that, too, not in a business developed by the company, but one in which the invention of the American method of manufacturing watch-dials had the power of holding a monopoly.

The forms which his charity has taken seem to have been limited only by the variety of the objects which caused its development: the formation of a Temperance College, which trained six hundred boys; the establishment of a hospital for the sick; public factories for those out of employment; the collecting of money for those in immediate distress—in which work a distinguished clergyman said Mr. Mullen could raise a hundred dollars where he could get but one; visiting the sick in cellars and in attics, and in administering to their wants with his own hands and from his own means.

With the mass of material before one, it is difficult to refrain from reporting incidents in the labors of this remarkable man, that show how he pleads with a judge to read the affidavits that shall at length free the innocent; entreats a young woman, who has been dumped out of a cart at the prison-gate almost dead drunk for the seventieth time, to reform, so effectually, that she becomes the happy wife and mother she now is; fights with the liquor-dealer for water from the hydrant to make soup for the starving and gets the victory, or clothes an infant* that has been covered up in ashes by its mother to keep it from freezing—but space will not permit.

Mr. Mullen is an ardent lover of Nature. He is heartily in sympathy with everything living, loving, and blooming. He delights in rich, bright colors, green fields, flowers, birds, and songs. He loves a sweet, smiling face, and exerts such a magic influence over the distressed and the diseased, that he brings back the long-departed glow of hope and gratitude. He seems to be almost insensible to anything but the good in others, and it has been said of him, that he has never been known to speak evil of any one, except to state facts when necessary, to the end that justice may be done. In private conversation he exhibits more of the sprightliness, vivacity, and delight of a young lady, than of the long-faced seriousness that one would look for in a man who spends nearly all his time with the wretched occupants of prison-cells. It would seem as though a superabundance of overflowing happiness sought out the most miserably poor and needy upon whom to fall, or as though his admiration for the "human face divine" were such, that the lineaments of beauty could be discerned through the masks of crime and dissipation worn by the very lowest of the race.

The Parish Gleaner, of the Church of the Evangelists, says: "He could not rest at his business, however profitable, and listen to the wails of woe that came up from the filth and degradation of Baker and Small Streets and their surroundings. Relinquishing a business that was paying him ten thousand dollars a year, he went forth, with a resolute will, to heal this great public sore; and though some thirty years or more have since passed away, he is still at the good work."

The recent report of the Philadelphia Prison Aid Association states: "The whole number of persons for whom the agent (Mr. Mullen) has procured a release from prison since the commencement of the agency has been 40,869 persons. These were all court cases, and their liberation has caused the saving to the tax-payers of our city the sum of $442,739."

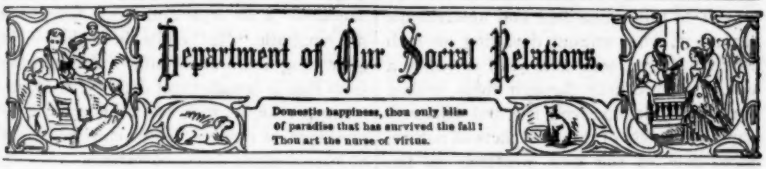
Certain significant commentaries by Mr. Mullen occur in the report, which should be added:

"Of the 21,727 persons committed to prison within the year, there were 69 committed for murder, or accessory to murder. All of these offences, with but one exception, were committed by persons who were intoxicated at the time, and who alleged that they were not conscious of what they had done.

* Five children were found in this condition.

"The agent has found these statements to be literally true. It is true now as it has been probably at all former times, that nearly all murders which have come to his notice originated in the use of intoxicating liquors. At enormous expense this community maintains the institutions of civil and criminal justice for the repression and prevention of crime, while also supporting penitentiaries and other kindred establishments for punishing by confinement the infractors of the laws; and yet hundreds and thousands of dram-shops are allowed, almost unmolested, to deal out even on the Sabbath and to the youth of our city, that maddening draught which brings men and women, of all descriptions and positions in life, to a common level of degradation, and which acts as an universal and, we might say, the almost sole incentive to vice and crime. Why is it, that such a state of things is tolerated, under cover of law, in a civilized and Christian community? If we wish to discover something which beyond all else was adverse to our principles of morality and religion, and which outraged, in the extreme, our every sentiment of decency and propriety, could we possibly find anything so exactly corresponding to our wish—anything so entirely opposite to what we teach, and preach, and desire to exist, as the prevailing practice of using intoxicating liquors? Could we find anything so effectually instrumental as this in filling our prisons with parents, who leave their children in cheerless homes, shrinking unto death under the pressure of Nature's commonest wants? Would that we could speak with a voice that might influence our law-makers to suppress this monster evil, which is sowing the seeds of destruction in our midst, and plunging so many of our fellow-citizens into the abyss of misery and ruin."

JOHN L. CAPEN.


Department of Our Social Relations.
Domestic happiness, thou only bliss
of paradise that has survived the fall!
Thou art the nurse of virtue.

THREE CLASSES OF MEN.

AMONG the manifold differences which serve often in a marked degree to distinguish man from man, none is more striking or interesting to the careful student of humanity, in its varied manifestations, than the manner and extent to which men impress each other—commonly recognized under the name of *influence*, and signifying the power, more or less, which the mind and will of one man is able to exert over the minds and wills of others. Viewed from this standpoint, mankind in general will be found easily resolvable into three broad, distinct classes, possessing marked peculiarities, which are easily recognizable in their respective types.

He of the first class, for instance, may be met with any and every day in the streets of every city, town, and village—albeit he does not constitute every other or even every third man you meet. He is recognizable as a representative of the first or, as we shall call them, the positive class, at a glance while yet a perfect stranger, or ere he has uttered a word. His claim to be so considered is demonstrated in his walk, his general bearing, the set of his features while he is silent, in the tones of his voice when he speaks. Perhaps the first circumstance that arrests the attention of the observer in watching such a one, as he threads a crowded street, is the ease with which he effects his progress; the way in which obstacles that would impede the course of any other man are removed, and prove to be no obstacles at all; the instinctive way in which every one turns aside or makes way for him, as if he were a locomotive engine on a track and could not in the very nature of the case be expected to turn out for any one else, and this whether his gait be fast or slow, hurried or deliberate. Wherever he ap-

points his path, through the crowded and bustling marts of commerce, or the surging throngs of pleasure-seekers, his way is cleared as it would be and is for no other man, and that without any apparent effort on his part. The hurried man of business dodges hastily to the right or left to avoid contact with one who he instinctively feels has no thought of turning out for him; the knot of idlers engaged in conversation, who have maintained their position and diverted the stream of travel for no one knows how long, part at once by common consent to let this individual pass through their midst; the dauntless company of young bloods who, linked arm-in-arm, stretch nearly across the sidewalk and sweep everything before them in their march, compelling every one else to dodge hither and thither, if not to turn off the sidewalk altogether, in the effort to get past them, even this redoubtable host is thrown into instant confusion at the approach of this unterrified and unterrifiable personage, who, without deviating an inch from his course, without a word or scarce a look, passes calmly through their broken ranks, being instinctively felt and acknowledged to be one of the fixed facts of nature, immovable as the hills, resistless as the water-courses, and before whom all must give way as a matter of course. It is the same on the cars and ferry-boats; it is the same everywhere. The portly gentleman, of deliberate movements, who, stationing himself in the narrowest part of the boat, calmly and complacently permits the smaller fry to wedge their way past him as best they may, or if requested to make way for passers-by, reluctantly yields an inch or so, and the next moment, by an apparently unconscious movement, regains it with interest, steps briskly aside when our subject advances, and allows him the utmost latitude for every movement. The little gamin who, with the utmost unconcern, keeps dodging in every one's way, as if with the intention of tripping some one, if possible, is careful to keep out of *this* man's way; and the market-woman, over whose basket a score of unfortunates have stumbled, to the damage of their shins, without eliciting more than the feeblest effort on her part to remove the obstacle, becomes suddenly aware of this man's approach and hurriedly draws it completely to one side or lifts it up altogether to get it out of his way. A general impression seems to prevail that there is but one alternative to getting as speedily as possible out of his way, and that is to be run down or run over, if not actually annihilated, and the alternative is taken as a matter of instinctive choice.

Follow him through the varied walks of life, at his home or in society, and we shall find that the same thing holds good here as elsewhere. As on the street, his physical personality makes way for itself by the mere potency of its presence, so here his intellectual personality makes itself felt as a force that can not be lightly set aside or disregarded, but must be consulted and conformed to in most cases. His nod of approval inspires fresh confidence in any project or the merit of any production, and sanctions it at once and most fully, while his emphatic "No" chills the ardor of the most sanguine, and an unfavorable criticism from him is dreaded and deferred to by better men than he, with whom his positive expressions of opinion, if not convincing, are at least deemed uncontrovertible.

Whence comes this wondrous power? What is the secret of the positive influence which men of this stamp, whether consciously or unconsciously to themselves or others, so undeniably exert over the opinions, wills, and conduct of those with whom they are brought in contact? We are speaking now of the genuine type of this class, whose power is inherent in himself, and is independent and irrespective of any factitious circumstances whatsoever; of any such concomitants as rank, wealth, personal appearance, intellectual ability or moral worth, each of which has its own appropriate influence, but is not, however, the influence of the man himself, as we are now considering him. That this is so, needs but a little careful reflection to perceive and acknowledge. *Rank* may provide a wider field for the exercise of personal influence, if the influence exist independently of rank; but it is not unfrequently the case that the highest rank bends its stately head in deference to the

untitled, but more potent, will of one of our typical individuals, who rules the ruler—the latter being but the medium through which the stronger mind makes itself felt more widely. How many kings have been themselves most abjectly governed, and their kingdoms, through them, by the stronger mind of some energetic woman of this stamp, whose presence inspired that respect which springs from latent fear, and which is unhesitatingly accorded irrespective of moral worth, and whose imperious will, without any other aid or adjunct, has awed royalty itself into obedience. The weak-minded and ignorant may pay instant deference to rank, for the sake of the power they suppose to be inherent in it and inseparable from it, when they see the star or garter that announces it; but high or low, wise or simple, recognize and obey the power of one of nature's self-ordained rulers without the aid of any outward insignia whatsoever, save such as are by nature inseparable from the man himself. The same remarks apply with equal force to the influence supposed to be inseparable from wealth. The weak-minded man, who is possessed of a fortune, is never the real master of it; and those who seem to him to be most affected by the influence he imagines he is exerting through and by reason of his wealth, are really governing him, controlling and determining all or most of his actions, and disposing of his means as they see fit. Sometimes even the semblance of deference to purely fictitious influence is thrown aside, and his bondage is plainly enough visible to the world at large, if not to himself.

Beauty has been popularly supposed to possess unbounded influence in itself, an influence as lasting as the charm which is its cause. If this were so, then might all beautiful women and all handsome men be deemed born to fortune and success, as possessing the key to all hearts, and sure of accomplishing every desire and realizing every hope, by means of the gentle, but potent, influence of their own perfections. Then might they indeed look forward, as many of them mistakenly do, to a life of sunshine only, unmarred by a single cloud, and lasting as their beauty. But that this is not so, the pages of history afford us ample and conclusive evidence. Beauty in itself alone has no lasting power. It may charm and dazzle; it may even overmaster for a season, but must in its turn give way to every fresher, newer attraction. The wife or sweetheart who holds her husband's or her lover's heart by her beauty only, must be prepared to surrender it to the first comer whose beauty is greater than, or even pleasingly different from, her own. No, the women who have figured so prominently in history, and have been so successful in accomplishing their purposes, were not all beautiful, nor were any of them beautiful only. Many of the fairest of them have had rivals fairer, yet over whom they have triumphed nevertheless. No, the mysterious power we speak of is within and above mere beauty and quite independent of it.

Nor does it reside wholly in intellectual or moral worth. Mind is requisite to appreciate and be impressed by mind, moral worth by moral worth, and, to the great majority of this world's inhabitants, the oft-boasted power of intellect and uprightness, of themselves alone, that is, without other qualities to back them, would have no more effect than the sublime harmonies of the greatest composer would have upon the deaf adder, "that stoppeth her ear and hearkeneth not to the voice of the charmer, charm he never so wisely," or than the milder rays of the sun would have upon the earth, if the atmospheric medium adapted to receive and convey them to their proper destination were wanting. The wisest and best can not create emotions and capabilities in others; they can only call forth and arouse into activity those which already exist.

In what, then, does it consist—this mysterious power? Why, external considerations aside, should one man's approval be so much more desirable than another's?—one man's frown more terrible? one man's will more potent, more certain to be respected and acceded to than that of another man, who may be in so many respects a superior? Why is it that the mere approving nod of one man has a greater charm for us, a higher value in our eyes, than the most lavish commendation from others? Why is

it that a mere look of disapproval or rebuke from one will weigh ten times heavier with us than the most energetic reproaches of another? Since we have shown that this influence has not its origin in wealth, worth, or beauty, in what, then, does it reside?

It is a question that might, and probably does, puzzle many minds, and has been in many respects an unsolved problem for generations past; but to the phrenologist the question is easy and plain of solution. To him the mystery is no mystery at all. The key to this wondrous power, so arbitrarily exercised by one portion of mankind over the rest, is found to consist in a certain harmonious balance of the organs of Firmness, Self-esteem, Combativeness, and Destructiveness. Any one of these may lead, but all must be well-developed; and there must exist a certain harmonious proportion among them. If any one is excessive, the charm is broken. An undue development of Self-esteem, for example, only produces overweening assumption and egotism, which are simply disgusting. Firmness, in excess, degenerates into dogmatic obstinacy, which is often mulish in its manifestations and meets with a mulish reward, viz., stripes and contempt; while excess of Destructiveness transforms a man into a savage, who, though dreaded for a time, is sure to be hunted down and overcome by the efforts of his fellow-men, organized for their own protection. But whosoever possesses these qualities in their just proportions is a born ruler, unanimously elected and acknowledged as such, and this for obvious reasons. His strong will, acting through his large Firmness, will none the less certainly and irresistibly govern and control, within certain foreordained limits, the weaker wills of those with whom he is thrown in contact, than does the moon influence and sway the mighty masses of waters that form the tides. His large Self-esteem imparts dignity and a sense of intrinsic worth to all his actions and opinions, which deeply impresses the minds of those in whom this faculty is weaker, and acts as a powerful stimulus upon their Approbativeness, even though they may themselves possess in a larger degree the knowledge, judgment, or moral excellence for which they give him credit, and, as they suppose, do him honor; while his large Destructiveness gives him executive force—the requisite sternness to impart that wholesome awe and dread of himself in the minds of others, which appeals so directly to their fears, and goes so far to bring them into, and maintain them in, a state of submission and obedience to his authority, and in concert with Combativeness, the necessary aggressive ability not only to hold what advantage he has, but constantly to contend for and gain new vantage ground.

Endowed with these three dominant qualities above his fellows, what wonder is it that he should unavoidably, and of necessity, be their leader and ruler in the physical, intellectual, or moral world, according as his other proclivities lead him? The wonder would rather be that he were not; and the only limit to the extent of his power will be the existence of the same qualities in an equal degree in an antagonist. "When Greek meets Greek, then comes the tug of war," and the contest of these mighty ones is viewed by lesser mortals with mingled admiration and dismay.

Turn we now to the contemplation of this man's opposite—the type of the second class into which mankind would seem to be naturally divided. He, also, is recognizable at a glance, upon the street as well as everywhere else. He is the man for whom no one thinks of turning out; *he* must dodge about, turn aside, look out, make way for every one else, and for all grades and degrees of greatness, or even littleness. Sometimes sensitive and high-toned, keenly feeling the constant slight put upon him, and only dimly comprehending the cause; sometimes low, mean, and servile; he is pushed, jostled against, set aside daily, hourly, constantly, by his equals or inferiors, oftenest by those who are beneath him in every respect; sometimes thoughtlessly, sometimes wantonly, because he lacks that mystic power which can compel respectful consideration from the rude and selfish masses of which the world at large is composed. He is the one whose opinions are never consulted, save perhaps as a mere matter of

formal courtesy to be quietly disregarded; his views, prejudices, feelings, and actions are expected to conform to the more important and powerful wills of the self-constituted majority, which is a majority not of numbers, but of power; and whether consciously or unconsciously, whether slavishly and blindly, whether cheerfully and willingly, or reluctantly and with desperate resistance, conform he must and does, in some measure, more or less, externally if not thoroughly and fully, in small things if not in great ones, and this through that overwhelming power that knows no law—the power of necessity. Because just where he is weak his opponents are strong, and they make use of their strength to his disadvantage.

This class, though presenting many varieties of character, arising from the relative deficiency of one or the other of the three different organs, in all of which it fails to excel, may be divided into two general subclasses, the high and the low. The latter we can dismiss with a few words. With no sense of interior worth, because utterly worthless, as far as this can be said of any human being, they deserve their fate, because they are fitted for and could appreciate no other. Thoroughly subject, both inwardly and outwardly, to the will of others, they are nothing if not guided and governed; and are never so well satisfied as when, figuratively speaking, they feel the pressure of some firm foot upon their necks. Dependent upon others for their opinions, principles, rules of action, their very life, so far as life consists in active volition, when left to themselves they are but as the chaff which the wind drives about in every direction. Having no mind of their own, undecided, easily baffled and confused, they are safe only when under the direction of some strong mind, to which they attach themselves as instinctively as does a dog to the human being, whose ownership and protection seem so necessary to him, and to it they yield perforce implicit obedience. And yet when, through a combination of circumstances, or to further the ends of others, any of these feeble beings are vested with a little brief authority, or clothed with extraneous power, they are almost invariably the worst of tyrants. Their will, endowed for a time with the external means requisite to achieve its purposes, inconstant as the winds, exacts the same implicit and slavish obedience to the most contradictory and impracticable demands that they have been wont to render to the mandates of others, under penalty of the most direful vengeance that malicious and wanton caprice, armed with all the terrible accessories of power, can inflict. True strength is oftenest magnanimous; but weakness, clothed with a little brief extraneous power, is ever to be dreaded.

A complete contrast to these, in every respect save one, are those whom we have mentioned as the higher division of this class. These, while conscious of every deficiency in themselves, magnified tenfold by a morbid self-depreciation, have nevertheless a sufficient sense of their worth as *men*, if not as individuals, to prevent them from ever becoming servile in their obedience, base in their humility, and though feeling the strong influence of others as a power against which they can not successfully contend, and which, in spite of themselves, molds to a great degree their outward conduct, and to some extent their aims, aspirations, and even opinions, have nevertheless a large mental domain of their own in reserve, where they are undisputed lords in their own right, subject to no man's will but their own.

It is not unfrequently the case, moreover, and is a most happy illustration of the great law of compensation that pervades all states and conditions, that the feeblest of these, fully conscious of their own inability to suffice unto themselves, place all their reliance upon an All-sufficient Power, and rendering the same implicit and childlike obedience to the commands of God that they have been wont to render of necessity to the mandates of men, they evince a strength in their weakness, when it becomes necessary for them to decide between the service of men and of their Maker, that is incomprehensible to those who, knowing their general character, are ignorant whence this wondrous and unlooked-for strength is derived. Gentle and pliable to a fault on all

ordinary occasions, quietly and cheerfully yielding up their wishes, desires, preferences, expectations—all, in fact, that pertains to them as individuals merely. When once a question of principle is involved, they become as adamant in their unflinching firmness, and this because, forsaking all reliance in themselves, they place their whole trust and reliance in the Omnipotence that sustains and upholds them; their whole confidence in the righteousness of their cause and the truth and justness of the principles they have to maintain. From the ranks of such as these have been recruited the purest, saintliest types of martyrs to truth and high principle in all ages.

The first class of men do not make good martyrs, as a general thing. Through the strong influence they exert over others, not so much by their words and opinions, perhaps, as by their presence, their strong, positive personality, they are seldom called upon to suffer martyrdom. Like Martin Luther, who was, judging from the accounts that have come down to us concerning him, an excellent representative of this class; though bitterly denounced, though often and terribly threatened, they contrive after all to die in their beds and in their own appointed time, like any inoffensive, unassuming mortal. Or if called, indeed, to the martyr's crown, it is generally won as is the soldier's, on the field of battle with the armor on, and the crown of martyrdom is not unfrequently twined with the laurels of victory. Occasionally it happens, however, that dreading his prowess, and knowing full well what the result of a contest would be, he is taken unawares, the opportunity of resistance is denied him, and he is hurried by his impatient foes to the scaffold or the stake. Even then the nature of the man is not changed or subdued; there is an interior self-consciousness of worth and superiority to the utmost malice of his enemies, manifested in his look and bearing, even at the supreme moment, that profoundly impresses all who behold him, and causes him to appear a conqueror in the midst of defeat and death. Not so they of the second class, who approach nearer to the ideal type of martyrs. They go to their doom like sheep to the slaughter, meek and uncomplaining, with no shouts of triumph, but only murmured prayers for courage and support, yet with a calm firmness through all, that comes not from within, but from above; and in the moment of agony their thoughts are not with their enemies, neither have they any rejoicing exultation that they are in the right; but with every thought turned away from themselves and the world and fixed upon the only source of strength for them. In their utter nothingness, they are made everything; through their very feebleness, they are made mightier than the mighty.

These two classes of men correspond to, and may be typified by, the positive and negative poles of electricity, or the magnet; and after a brief survey of the extent to which men lead and are led by others, it would seem as if one half the world were delivered over to the guidance and dictation, good or bad, of the other half, and that a man must either lead his fellows or be led by them, that in the hosts of mankind all were either leaders or followers. And to some extent, and within certain providential limits, it is even so; though not to the extent that might at first be supposed, from the view we have already obtained of the subject. Because, in the first place, influence, however arbitrary and one-sided may seem its exercise, is, after all, in its subtler tracings, a reciprocal matter to a greater extent than appears upon the surface, even negative poles having their relative place and power with regard to the positive; and secondly, because the two classes, already depicted, do not constitute in fact the whole of mankind; and this brings us to the consideration of the third or neutral class.

The typical man of this class is as easily recognizable as either of the first two, and yet far less likely to be marked for recognition than either, simply because he has no remarkable peculiarity about his appearance or actions. He does not impel every one by the magnetism of his presence to turn aside and make way for him, nor does he turn out for every one else; but goes steadily on his way, promptly turning aside, and yet no further than is necessary, for the strong, and unconcernedly setting aside the

weak, intent on his own business, paying but little attention and evidently attaching no very great importance to the opinions or affairs of others. Without exerting any marked personal influence upon the actions or opinions of others, he is not very susceptible in his turn to their influence; and while not difficult to move or bend where it will be conducive to his advantage, he is not remarkably pliant or yielding where his own interests are not concerned. While he rarely attains the dignity of martyrdom through his staunch adherence to any party or principle, he is by no means an easy tool in the hands of others. His leading faculties are so balanced as very nearly to neutralize each other. His Firmness and Self-esteem are full without being very large; while his moderate Approbativeness renders him, if not indifferent, at least not unduly sensitive to the opinions of others, and certainly not disposed to sacrifice his own views, opinions, and interests, or to incommode himself very seriously to avoid their disapproval or gain their commendation. He has Combativeness and Destructiveness enough to defend himself with vigor, if need be, and protect his own possessions, though he is but moderately aggressive. Apparently he has no weak points, and is very well adapted to preserve the balance between the two first-mentioned classes; acting as a natural breakwater to the violent aggressions of the first, and as a defense, in some sort, to the second; the spectacle of his calm indifference to what seems to them the overwhelming power of the first class, inspiring oftimes in the breasts of the second somewhat of courage and confidence, nerving them by the force of example to some degree of resistance to the force that would otherwise carry them away entirely, to the peril of their individuality of purpose and action. If not the majority, this third class constitutes at least no inconsiderable proportion of mankind, and, like mortar, are extremely useful in filling up chinks and keeping apart warring particles that might otherwise collide, with disastrous results.

We have them all now before us—the positive, negative, and neutral, or three independent classes of men, as illustrated by their respective types, to which common observation will demonstrate that all the different classes of mankind may be referred. Of course, the modifications of these characteristics, as to degree, and the modes of their manifestations, will be varied in different individuals and under different circumstances, but will be at all times sufficiently marked to be recognizable, and to enable the reader to determine to which of the three he belongs. And now a parting word to each.

To you of the first class, we could preach a long sermon on the obligations and responsibilities that devolve upon you in consequence of the mental constitution with which you have been endowed; but will content ourselves with this much of warning and admonition. Your besetting sin, which you must be ever on your guard to restrain and control, will be the love of dominion, the desire and inclination to domineer, if not to tyrannize, over others in some form; to govern, control, or direct their outward actions and behavior, or to mold and influence their views and opinions, intellectual or moral; in other words, to be the self-constituted critic and dictator of all that pertains to the inner or outer life of others. Finding it such an easy matter to have their own way, men of your class have but little regard for the opinions, wishes, and interests of others, when these clash with their own; and from the very deference habitually yielded them by others, they grow exacting and often overbearing. You will need, therefore, to cultivate more thoughtful regard for the wishes and feelings of others, that you may be ever ready to accord them by courtesy what they are reluctant, through fear or sensitiveness, to demand of you as a right. Cultivate especially that magnanimity of soul, in small things as well as great, that should be the redeeming trait of a character like yours; and strive rather to be perfect master of yourself, than to exercise mastership over others. Look closely and rigidly into the motives that underlie your prompt and effective action; and as your views, opinions, assertions, and commands carry such weight with them, be sure that they are based on truth, justice, and sound principle, and that they are really

conducive to the welfare of those whom they are designed to influence, and not merely calculated to advance some selfish purpose of your own. Let the fact that nine-tenths of those whom you meet will credit you with being right in your views or assertions, whether you are so or not, only stimulate you to guard more sacredly the trust that such confidence imposes upon you. You are destined, by your very organization, to be a power that must be felt, more or less extensively, for good or evil; which it shall be, rests for you to determine. Remember that the actual possession of the mental and moral worth, for which all are ready to give you credit, is all that stands between you and true greatness; therefore strive to attain to it, and *be* to the full all that you now seem.

To you of the second class, who are all your life brow-beaten, baffled, and set aside, your most cherished projects ruthlessly overturned, and your hopes and desires set at naught by those who are stronger than you; you who shrink instinctively from self-assertion, yet yield to what is, after all, the mere self-assertion of others, an outward deference, at least, that perplexes and often vexes you, when free from their controlling influence you come to think it over; you who are always and habitually waiving your own purposes, views, and preferences in favor of the projects and prejudices of others, and yet for it all reap seemingly no reward, save the occasional loss of self-respect; for you we have much sympathy, much consolation, and even encouragement to offer. For in you, also, are the elements of greatness of character in a higher sense. From your ranks have sprung some of the purest, sweetest, most exalted souls that have ever lived, and died unappreciated, sometimes almost unknown by their contemporaries, yet are revered by posterity. You have furnished by far the largest accessions to the "noble army of martyrs;" and many a noble mind that has lived and died in obscurity, unknown and unfelt, because lacking that power of self-assertion that would enable him to impress those of his day and generation, has nevertheless exercised an influence above and beyond the highest degree of mere personal influence, which, dying not with him, because not dependent upon his presence for its power, has blessed generations long after the world has forgotten what manner of man he was as to outward appearing, if indeed it ever knew.

Take courage, then, ye feeble ones, true saintliness is not beyond your reach; acquit you like men; be strong in a Strength not you own, and therefore available for your every need. Your greatest danger, as your greatest failing, will be a tendency to overvalue the opinions and authority of others, and to make undue sacrifice of self-respect, if not of principle, in their behalf. Therefore, transfer your allegiance from man, whose power is but for a time, to Him whose mercy is forever, and you are safe. In the formation of the highest type of Christian character, you will have no stubborn will, no perverse opposition to the dictates of your higher nature to contend with; but, on the other hand, you will be liable to an infirmity of purpose against which you must be ever on your guard.

To those who constitute the third class, we might naturally be supposed to have but little to say, since they have neither failings to inspire sympathy and commiseration, or great and terrible qualities to excite awe and dread. What they may fail to demand on the score of quality, however, they may yet claim on the score of numbers; since, if they do not constitute the majority of the world's population, they certainly approximate it in this country, at least, where they are steadily increasing. They are either the most estimable or the most despicable of the three classes we have named, according as their mental poise is attributable to the steady adherence to high and noble principles, which will not allow them, on the one hand, to oppress or domineer; nor, on the other hand, to sacrifice either dignity or principle to the force of circumstances or the pressure of influence, or as it proceeds merely from the apathy of cold, calculating selfishness. We would therefore suggest to the representatives of this class, that while justifiable and commendable in avoiding the two extremes between which they serve to mediate, there is yet some danger lest they

fall into that lukewarmness of character, so to speak, that is more intolerable than either, and which would lead us to exclaim, Would that thou wert either hot or cold!

In presenting the characteristics of these three classes of men, we have described them as they manifest themselves instinctively and independently of the influence of education, by which they may be modified almost beyond recognition. It is sometimes the case that the conduct and bearing of two individuals, one belonging to the first and the other to the second of the classes above mentioned, may be so nearly alike, either in their mutual concession to, or defiance of, each other, that there may appear to the casual observer to be little or no difference between them, certainly nothing to indicate that they are to be referred to such widely different classes. But it will be found, on closer investigation, that in either case the actions of one spring spontaneously from, and are in accordance with, his very nature; while those of the other are, consequently, in spite of, and contrary to, his natural instincts, more or less forced. *This* man is courageous and boldly defiant, because, with his large Combativeness and Destructiveness, as incentives to belligerent action, and his large Self-esteem to inspire him with plenty of confidence in himself, he can not well be otherwise; *that* man, with Combativeness and Destructiveness inadequate of themselves to sustain him, with a host of doubts distracting his mind, and his large Cautiousness sounding the alarm and urging instant retreat, yet, through Conscientiousness or Benevolence, forces himself, in spite of all, to stand his ground and present as dauntless a front as possible; nay, even to do battle in defense of some person or principle dear to him, while every physical and mental fiber in his being quivers with excitement at the powerful strain laid upon them. This one holds tenaciously to his purposes and opinions, because, by reason of his large Firmness, the hardest thing for him would be to give up or yield in anything; and in standing firm he but follows the bent of his strongest inclination; that one, with every instinct prompting him to affable or timid concession, compels himself to maintain firmly, as a matter of conscience or self-defense, a principle, or course of action, of whose truth or necessity to his own preservation, natural or spiritual, he is convinced. Again, that man defers with the utmost readiness and courtesy to the wishes and requirements of others, because it is natural and therefore agreeable for him to do so; this man, actuated by a principle of justice, duty, or philanthropy, bends his stubborn will into compliance with the desires or commands of others, at what cost to himself He only knows who sees and aids the struggles of men to overcome their ruling evils.

Moreover, education affects these characteristics so much as in the end to transform them altogether, and almost to give rise to another, a transitional class, that should comprise those who, starting from one class, were being transformed into very fair representatives of another. And yet, properly speaking, the innate, essential character of any man, that with which he was born into the world, can no more be transformed into its opposite, by any amount of education, however much its modes of outward manifestation may be modified, than can his individuality or identity as a man be changed to that of some one else. The born ruler, however much the education or circumstances of his life may serve to repress or control his tendency to govern or command, still retains within him the qualities that fit him to assume the charge and direct the affairs of others, a sense of competency and an eagerness to assume responsibility, which an emergency will bring to light and develop into full activity; while the true representative of the second class will never attain to more than the ability to protect himself from the encroachments of others when necessary, and a just estimate of their value; and all the influence he can exert over them, however great it may be, will be by means of the truth as a weapon acting upon their reason and comprehension, and not by the force of his will, through the power of intellectual and moral conviction, not his own personal magnetism; and any attempt on his part to govern by any other means than these, will only result in mortification and defeat.

Each of these three classes has its place to occupy and its distinctive use to fulfill. The first are admirably adapted to grapple with and solve the many hard problems which natural or social science every day presents us for our consideration; to meet, subdue, and govern the turbulent elements of society or the adverse powers of nature; the second, by their pliant, yielding disposition, and their instinctive appeals to reason, rather than to force, are well qualified to ease the machinery of social life in its course over rough places, to modify jolts and jars, and in many ways to pour oil upon troubled waters or rusty hinges; while the third class act, as has been shown, as a mediating influence to preserve the balance of power between the first two, and prevent either from going to excess. While each, then, should strive to regulate his character, by modifying his excesses and making up his deficiencies as far as he is able, he should recognize and feel the importance of the place he may fill in his own way and sphere, and, without aspiring to be any one else but himself, sanctify and make the most of every faculty he possesses, without seeking to change or eliminate any, and he shall have, through time and eternity, the blessing of a world that through the right use of his own powers, whatever they may be, he has helped to benefit and bless.

ALTON CHESWICKE.

COUSIN ARTHUR'S STORY.

"DO you believe in broken hearts?" I said to Arthur Roberts, one of those frank, noble specimens of manhood that are rare enough to be highly valued. After five minutes' silence, in which we had both been looking thoughtfully into the bright fire that burned at our feet, lighting up the plain, but comfortable, sitting-room of Uncle Roberts' house.

"Not exactly," replied Arthur, "and yet I do believe in what is usually understood by the term, 'broken heart,' in the terrible reaction of affections sent back in a cold flood of disappointments upon the heart, checking suddenly the well-springs of hope, shattering in an instant the creations of many a day, till slowly, but surely, the foundations of life are sapped, and disease and death follow. I believe in it, not because Irving has spiritualized the thought in his pathetic story, nor yet because it seems reasonable that it should be so; but what a man sees with his own eyes he is hardly at liberty to disbelieve."

Lost in thought, I made no reply till Arthur broke the silence.

"Do you remember Ruthie Russell of our childhood?"

At mention of the name, a picture arose slowly, but distinctly, from the shadows of memory.

"Ruthie Russell? Why, yes, that little fair-haired girl that used to come over from Caleb Russell's to play with us. Where is she, what of her?"

"She is in her grave."

Arthur's voice, always deep-toned and sympathetic, was husky with emotion. "And," continued he, "the daisies never blossomed over a truer, nobler heart than hers. You know I never had a sister, but I believe I loved Ruth, as I should have loved such a relative had the blessing been mine. From childhood we grew up together, and whatever one enjoyed, the other usually had some share in. You do not perhaps know that Ruth was only an adopted child of Mr. Russell. Taken when a mere infant, she was reared as tenderly as an own daughter could possibly have been, and enjoyed every indulgence and luxury that any child could reasonably expect. She was not sentimental, at least not in the obnoxious sense of that word; had a rarely philosophical mind for a woman (in all due deference to the sex be it said), and evinced such vigorous natural thought, and such felicity in its expression, that I used to fancy her career would be one of letters.

"We spent two winters together at Mr. B.'s Seminary, and here Ruth shone pre-eminently as the poet of the school; not

a mere stringer of nonsensical rhymes, in which bad melody cloaks over the want of thought; her conceptions were vigorous, her rhythm good, her style excellent if not faultless. Yet though her mind was poetical, it was at the same time mathematical—an unusual combination, I have sometimes thought. I see yet the look of blank amazement on Mr. B.'s face when Ruth would go to the blackboard and talk us all down in geometry. In spite of her sex, we all naturally enough looked up to her, for if she reigned a queen, she concealed all consciousness of her sovereignty, never displaying when it could be avoided, a superiority that we could at least honor if not emulate. The workings of such a mind as hers was a wholesome sermon on the equality of the sexes; and if the dose was a little hard for some of the boys to swallow, they gulped it down as best they could, and said nothing. For myself, I was too closely allied to Ruth, by friendship and long association, to be ever envious of her success. Indeed, no man capable of appreciating the noblest attributes of the female character (for she was truly feminine), could know Ruth and not love her. She might have been naturally rather impulsive, but her sensible, even-poised mind was the governor that regulated so well that exquisitely-molded and finely-wrought mechanism.

"At sixteen, through the malice of a jealous enemy, she discovered for the first time that Caleb and Mary Russell were father and mother only in name. This was a terrible shock to her sensitive soul—how great they only can know who have had a similar experience; but she withstood it with a wonderful firmness that surprised us all. By some financial mismanagement Mr. Russell lost the greater part of his dependence; and Ruth, like the noble girl she was, insisted on supporting herself by teaching.

"I hardly think this occupation could have been congenial to Ruth, with her fine taste and poetical temperament, but she succeeded in it as she did in everything else she undertook, and was appreciated even by those who were quite unable to understand thoroughly her noble nature. The children in her school looked up to her as to an oracle. As illustrative, I remember riding across the country on some business for Uncle George, one summer, when I found myself in the vicinity of Ruth's school. 'I will call on her,' I thought, but before reaching the school-house, I met the children on their way home, armed with books and baskets.

"'How do, my little fellow,' I said, accosting one of the smallest urchins in the straggling line, a bright little chap with a very dirty face; 'can you tell me who teaches your school?'

"'Miss Ruth Russell, sir,' was the inquisitive reply, made in a tone that seemed to say, 'What business is that of yours?'

"'How do you like her?'

"A stare was the only answer.

"'Is she a good teacher?'

"'A mighty *smart* one anyway,' sung out the boy; 'she knows more'n the book.'

"But to the later events of my story. The vacations of a district school are not short. These Ruth spent at home. How much she seemed to enjoy them. Mrs. Russell was growing feeble, and allowed the cares and hospitalities of the household to devolve on Ruth, and not ungracefully did they sit upon her. But I must ask you again if you remember George Newlin, only son, though not the only child of Isaiah Newlin? They live about two miles up the valley in an old-fashioned, but beautiful place, which has descended from father to son for several generations.

"The aristocracy of the Newlins, if I may use the term, was neither that of wealth nor intellect, but seemed to originate in a detestable family pride, which fostered the idea that the Newlin name was a little more respectable than most of the family names in the neighborhood. They had, it is true, some pretensions both to wealth and talent. Isaiah Newlin had, I believe, been a member of the Legislature of his State, and was in some departments of scientific research quite a student; but George at least had inherited none of his father's literary proclivities, and the educational advantages of the children, as not infrequently happens in such cases, had been nothing more than a regular attendance at the public school, topped off by

a year at some academy. From an acquaintance, not intimate, with George Newlin, I should judge that his mind was unusually sluggish, and being timid, he bore the honors of early manhood quite awkwardly. George's sisters and Ruth had visited each other for years, and were, so far as my knowledge extends, congenial friends, though I am quite certain that in solid attainments, culture, and native refinement, Ruth was far superior to these scions of the Newlin stock. Among the earliest instincts manifested in George, was his partiality for Ruth, which feeling, strange as it may seem, was reciprocated by Ruth. Her ideality must have invested him with positive virtues not discernible by other eyes. I am not speaking with the prejudiced mind of a wounded friend or a rejected suitor. I loved Ruth more tenderly, perhaps, than many a lover does his adored one, but I never thought of wooing her. Our affection was more that of brother and sister, or at least was only so acknowledged to ourselves. I was her confidant, the only male friend to whom she revealed this pure passion of her heart; and while feeling then, what I saw so clearly in the later developments, the wide disparity in their natures and force of character, I remember, with almost reverential admiration, her pure, enthusiastic devotion that could apologize for every defect, excuse every weakness, and magnify the few noble traits of a character whose noblest seemed its love for her.

"Months rolled by. George was always attentive in his own way, and Ruth was affectionate and happy. Up to this time the course of their love had been but little ruffled. I am inclined to think that George's sisters had always secretly been opposed to the intimacy, but having no plausible objections to offer, had only shown their disapproval in small slights and offending coolness. When the time came for an avowed engagement, the parents may have filed objections, but such were never made known to Ruth, who understood the whole arrangement to be satisfactory. They were to be married in the early spring.

"The affianced life of a few months which followed was one of busy care, but of apparently exquisite happiness to Ruth. She seemed to be ever bright and joyous, looking forward with radiant hopes to the future, but asking in the present for nothing more than she possessed.

"But there came a fearful reaction. For causes not known, George's accustomed visit was not made. Another period of the usual length passed; no letter was sent, no intimation given. Finally, in her trouble Ruth wrote for an explanation, which received no answer. The great gulf of silence lay between them cold and bitter as death itself. The roses left her cheek, and the settled hue of despondency lay upon her brow. I did everything in the power of one human being to avert or break the force of the withering blow that I saw was descending with fatal aim. I went to George myself with the request that her letters might be returned to her. He replied agitatedly, but with seeming heartlessness, that they had been already consigned to the flames. Society saw, chattered, and gossiped in its unfeeling way, which only aggravated Ruth's despair. God alone knows the anguish of a heart like hers, wrenched suddenly from its fondest earthly anchor. Before many months the reason of George's desertion was apparent. He was wooing another, an acquaintance, I can not call her a friend of Ruth's—a wily woman, who had insinuated herself into Ruth's confidence, and must have known with tolerable certainty that George and Ruth were engaged. The meanness of such a nature I despise too much to dwell on. Suffice it to say, that this new love of George Newlin had no attractions, either of mind or person, to compare with Ruth's. Her father, however, was wealthy.

"I could not yet believe that the heart of man or woman could be so utterly destitute of feeling. By dint of a dogged perseverance I succeeded in securing one interview, the last and only one after the estrangement. It did no good, and must have been painful to both. George gave no satisfaction, and after this Ruth's courageous spirit seemed utterly broken. She went into school again with a nervous determination to live down the desertion, but the

weight of insulted love crushed her to the earth. Loving and sympathetic parents, kind and devoted friends, a strong mind that said: 'I have done well in escaping such a union,' alike were unavailing.

"Her health failed; a slow, lingering illness followed, in which her pure spirit seemed almost disenthralled from the suffering body, so angelic and free from earthly passion did it seem. She never had a word of censure for her faithless lover. She used to speak with just the faintest tinge of regret of her unaccomplished desires to do good — her tender longings to watch over the declining years of her adopted parents, but in the clear tones of prophecy she would add: 'God's judgment is better than ours. His love is infinite. It is best.' The roses of early June, that adorned the festivities of George Newlin's wedding lay in peaceful beauty on Ruth Russell's bier. The slavish creature of an idle fancy or of worldly wisdom, or a cursed love of gold—the sainted bride of Heaven, let the world judge between them."

I looked up through blinding tears to see that Arthur's cheeks were flushed, eyes wet, and lip quivering. It seemed as if the fearful shadow that had settled so heavily on Ruth Russell's life had fallen for the moment on ours.

"'Tis a sad, sad story," I murmured, "but are there many such?"

"Many?" replied Arthur. "I do not know—I hope not many such; but I have no reason to believe the case an exceptional one, though not often the consequences are so speedy and can be traced so certainly to the primal cause. The world calls it weakness and suicidal folly. I can not see it so. It was a fearful mistake, as it proved, for Ruth Russell to lavish her love on such a man as George Newlin; but that very constancy of affection would, under different circumstances, have been the crown of her womanhood. But so long as men or women love one, and then marry another for wealth, position, or any minor consideration, so long will there be such sad, unvarnished tales as this to tell. Over such criminality God and the better sense of humanity sit in fearful judgment." ANNIE F. BRADLEY.

ROBBIE'S WHEELS.

THE active invention, yearning for occupation, and vivacity of an intelligent urchin, are well illustrated by Olive Thorne in the following sketch, which we take from *The Christian Union*.

"Mamma, I need a pair of wheels," said Robbie, one day.

"Um," said mamma, who was busy, and didn't want to talk.

"Where can I get a pair?" asked Robbie.

"I don't know."

"But I want them, mamma."

"What for?" asked mamma.

"Cause my others are too little."

"Well;" said mamma, who didn't think a pair of wheels was any great matter to make a little boy happy. "We'll ask papa."

So that night when papa came home, the request was made, and the next day when he went to the factory he told a man to saw out a pair of wooden wheels, and at noon he took them home.

Robbie was delighted, and rolled them around a little while. Then he came up to papa.

"When can you make me an axle, papa?"

"Why, who said I would make an axle?" asked papa.

"But I need one to hold my wheels together?" said Robbie, earnestly. Papa couldn't resist that logic, nor the pleading little face, so he went out to the barn and got a piece of hard wood, sawed it off the right length, whittled it into a very nice axle, put the wheels on it, made a pair of pegs to hold them on, and handed it to Robbie.

He rolled it around the floor a little while. Papa went away, and mamma was busy again.

"Mamma," said Robbie, at length, "a handle's got to be whittled, big enough to go into a hole that's got to be bored in the axle."

Mamma said nothing.

"I need a handle," Robbie went on insinuatingly, "to draw it by. How can I draw it 'thout any handle?"

"Can't you tie a string on?" asked his mamma.

"'Twon't go straight, 'n 'sides, carts don't have strings," he went on, indignantly; "they have thills 'r else a pole, 'n I need a pole, I do really."

"Well," said mamma, "I can't make a pole to go in the axle, but I have a thin stick that I'll tack on to the axle, if that will do."

After some hesitation, in consideration of the well-established fact that mamma couldn't whittle—early instilled into his mind—Robbie decided that it would do. So mamma fixed that, and went on with her work, sure that now Robbie would be happy.

But alas! in ten minutes there came an earnest little voice at her elbow.

"Mamma, who do you sink can make me a box to my cart?"

"Oh, dear! isn't that cart done yet?" asked mamma. "I thought that was all fixed."

"'Tan't a cart 'thout any box," said Robbie; "'n I can't draw anything on it, 'cause it slips right off."

That was unanswerable again, so mamma got up and hunted around till she found an empty cigar-box, brought out her paper of big tacks, and tacked it on. She then sat down with a sigh of relief.

Now for some time Robbie was quiet. He drew the dolly till he got tired, and then a new idea popped into his head.

"Mamma, who can fix me a seat to my cart? who can?"

"Goodness! what do you want a seat for?" asked mamma.

"'Cause I thought of it, 'n dolly's too down low 'thout any seat."

"Put one of your red blocks in for a seat," suggested mamma.

The red block went in, and peace once more descended on the family—for the space of five minutes.

"Mamma, I guess I'll harness up my Christmas horse to this cart," was the next idea. "How can I harness it up?"

No reply from mamma, discouraged.

"Won't you tell me how I can?" (pause for reply.) "Won't you (pause) tell me (pause) how I can?"

"Dear me—I can't harness horses," said mamma, "you harness it yourself."

"But I need to have a wipple-tree made," said Robbie, earnestly; "like papa's buggy,"

"Goodness, Robbie! I'm not a buggy-maker," said mamma, in dismay.

"But it's just as easy—not a reg'lar one—just a stick fixed in the middle, you know, 'n then a harness, 'n a pair of lines—"

"But you know I can't whittle," said mamma, appalled at the way things were piling upon her.

"I can find a stick just 'bout right," said Robbie; "'n you can make the harness out 'o string, like the next door boy made for his kitty."

"Dear me! I'm not a harness-maker either," said mamma.

"But I can show you," said Robbie with lip beginning to quiver. Then mamma remembered that the little boy had no one to play with but his mamma, so she put up her work, got out her string and knife, and went to work under Robbie's delighted direction.

She made a wiffle-tree (after a new fashion), and tied it on. She made a harness and a pair of lines, that Miss Dolly could hold (if her hands were pinned together). In fact, she made one little boy supremely happy for one day.

But as he was going up to bed, he said earnestly:

"Mamma, I'll have to have two fours of wheels to-morrow."

"Mercy on us!" said mamma, aghast; "what for?"

"To make a new freight. I need a new freight to my train."

THERE can be no greater blessing than to be born in the light and air of a cheerful, loving home. It not only insures a happy childhood—if there be health and a good constitution—but it also makes sure a virtuous and happy manhood, and a fresh young heart in old age.

Department of Literature, Science, Education.

True philosophy is a revelation of the Divine will manifested in creation: it harmonizes with all truth, and can not with impunity be neglected.

WRITING AS AN ELEMENT OF EDUCATION.

THERE are very few men who have positively discountenanced the use of writing in the education of youth. Milton did; but he not only lived in a different stage of thought from ours on educational problems, but impugned part of his own training. Its place in modern education must, of course, be determined in the light of modern thought, and in harmony with the rational demands of the best methods of training youth.

These methods are a subject of most earnest study by all true instructors, and while there is much of error held in regard to them, unquestionably great advances are being made toward the useful and true in them. It is a mistake no doubt to attempt to make education too easy or too rapid, for in this there is great danger of rendering it superficial. Certainly it is desirable that education should be made easy as far as it can be done consistently with thoroughness. Any attempt to do this is laudable; for any gain in this direction is a saving of an invaluable amount of time, and thus virtually a lengthening of life. But we can easily see the danger ahead here. If by making our system of education easy and attractive, we detract from its thoroughness in any degree, we are, at least, exchanging a known advantage for a questionable one.

There is nothing so common among reformers as self-deception. They see the faults in old systems, and easily persuade themselves that almost any change would be for the better. They espouse the cause of their new plans with all the enthusiasm of partisans, forgetting that the first thing, as the celebrated Turgot has well said, is to invent a system; the second, to be disgusted with it, that is, to try it as dispassionately and as severely as we would if it were another man's. This is why we have had so many vicious and short-lived systems of education proposed, sometimes practical, and why we shall have more of them.

Archbishop Whately has examined quite exhaustively the advantages and disadvantages to the student that come of writing, but has given no very positive decision for either side. He seems to incline strongly, however, to the side of the advantages, and his eminent authority should be well considered. Some cries come from outside the colleges for less writing; for, say the complainants, we have writers enough, and if we need more, the necessities of the time will create them. But they fail to see the object of writing in education, evidently. It is not to make writers, but to train the mind; and it enters no more as a specialty into a common education than Algebra does. It is true it is designed to meet a want, but not to train for a profession. If it does indirectly afford a means to this end, so much the better. I think the experience of all will testify that those who have an inclination to write, will write, whether well or ill; and if their early education has fitted them in any degree for this, the country is certainly a gainer, not only in having better things said, but having them said in a better way; for a man can no more write than make a pair of shoes without learning how.

The amount of writing usually required in colleges, measured by what I think its uses are, is remarkably small. In some colleges no direct attention is given it at all. Of three colleges I have been connected with, one required no written work except an occasional written examination and an essay or two; the second, besides some

written examinations, demanded of the students in their Junior and Senior years the delivery of a few original declamations, but attended to scarcely anything but the style of rendering, and even to that in a very limited way; the third put down in its catalogue written exercises as a part of the prescribed course and rigidly demand their execution. It required in the Sophomore year six themes; in the Junior, six themes and four forensics, and in the Senior four forensics, and written examinations in everything throughout the whole course. The greatest value of these last is in giving readiness and concentration of thought. They do not afford time for the selection of words, and this is an element that should enter very largely into a young writer's composition. Rapidity of composition in anything designed for use, should only be attempted when the proper words have become so familiar that they present themselves with the thought we would express.

As far as I have been able to learn from an examination of published reports, the number of exercises given above is the highest required in any of our colleges, as well as the best adapted of any in use for the greatest thoroughness in drill. In the majority of them the number falls below this, and also the kind. Most generally all the training the student gets in this department consists in a few general remarks from the professor of English, and these usually amount to no more than directing him to write in the most elegant and telling style. Besides these, he has his own efforts in the literary societies, together with the crude criticisms he receives there. These, to be sure, are not to be despised. They are a vast help to a young man who earnestly applies himself. I dare say there is not a man who has been through college but that remembers some such criticisms that have been more or less valuable to him all through his life.

I do not think this neglect of writing comes from disapproval of it, so much as from indifference. A large number of instructors seem to proceed on the principle that if they furnish the student with facts or the opinions of other men, the rest will take care of itself. But experience proves that the man full of facts simply is scarcely more capable of grappling with the great practical questions of life than the veriest boor. Such a one is above all others the most easily led astray by well-dressed error. All new doctrines are to him dangerous alike, because he has never been taught to distinguish for himself. Such an education is of course glaringly incomplete. It leaves the mind all defenseless. It is the business of education to give the mind nerve and discernment. The body may be trained up in such a way that though it has a man's size and flesh, it has a child's strength. So the mind may have an admirable breadth of knowledge, and yet be utterly powerless before untruth. It has no self-reliance—practically, no judgment.

The whole lot of developing the judgment does not fall to the lot of writing certainly. Many influences contribute to this; but writing is, I think, very prominent among them. The end aimed at by it is three-fold: First, elegance of diction; secondly, how to think originally; thirdly, exactness of knowledge. I do not believe that any one of these objects can be completely or easily attained without it, especially not the first.

It is no small thing that a man is able to tell elegantly what he knows; nor is it any small part of his education that teaches him how to do this. The first thing in training a child is to instruct him in the use of words; and nine children in ten are taught wrong. Their parents, from whose lips they catch the first elements of speech, do not know the use of words. This is why it is so hard for children to acquire anything like a mastery of our language. During the very period when they could have acquired it most easily, they were acquiring something else. Their school education, therefore, instead of being an advance on what they already know, is too often an upheaval of it, a direct warfare upon it. Also, it is a fact to be deplored, that too much of the ordinary conversation of the young, and sometimes of the old, is carried on in a dialect of unadulterated slang. They so accustom their minds to this kind of speech they often find it difficult, if not impos-

sible, to express their thoughts by any other means. I have many times seen men embarrassed by this difficulty. It is not to be denied that slang sometimes gives a happy turn to a thought; but it is not at all fitted for the best thoughts. It follows that those who use the most slang have the least nobility in them.

All this appeals powerfully for some counteracting influence in our schools and colleges; and where can it be found so well as in writing judiciously used. The child at first has no thoughts of his own, and must use other people's. But this does not prevent his using these borrowed thoughts properly; in which his energy is to be spent until he gets strength enough to do more; not that he completes it first, but he begins it first and afterward carries it on simultaneously with other things.

Elegance of style is acquired just as we acquire speech, by association and practice. Reading, while it is an excellent help, is not enough. A man may be sufficiently acquainted with a language to read it with perfect ease, and to detect any grammatical mistakes of his authors, and yet not be able to write it or to speak it, unless he has made this a matter of special care. This, if not seen readily in regard to English, every one knows to be true who has studied other tongues. He finds that mere knowledge of the forms of a language, however good that knowledge may be, does not by any means make them master of the language; and he will see many persons who speak it with ease and correctness, if it is a spoken one, who are not nearly so well able to explain its forms and intricacies as he is. They use it, he does not; and though the reasons may have escaped their minds, having acquired a correct style, they keep it as naturally as they would another.

Some object to writing because, they say, it gives preciseness at the expense of ease, which is the charm of most kinds of style. It need not do it. Preciseness must not be interpreted to mean dryness. Perfect propriety is compatible with perfect ease. But I suspect that what our objectors call an easy style, is the common, corrupt, and inelegant conversational. Moreover, we find that those most accustomed to write, write the most elegantly. Speakers who are entirely extemporaneous are usually the poorest writers; and generally choose their words with the least regard to propriety. They are they who, when they write, fall almost invariably into the unpleasant mannerism which our objectors lay at the door of writing.

After the discipline of the ordinary academical studies and the theme-writing, which consists mainly in expressing, the pupil is furnished to a considerable degree with the means of thought. He has a store of facts, and his ideas of what he has been studying before begin to assume shape. It is at this point that writing begins to be more perceptibly useful. It helps to a larger vocabulary of unusual words, that is, unusual to the average student. It is to be remembered that each individual makes use of really a very small number of words. From three hundred to seven hundred serve all the ordinary purposes of life, and few persons have more. But it is very evident that the man who has no larger vocabulary than this, has a very narrow sphere of thought. We would not, I think, err very much if we measured every man's mental calibre by the number of words he uses. They are the instruments of thought; and the more and the better words a man has, the more and the better thinking he is able to do. The workman who uses the finest tools does the finest work, and the man who has the most different tools must do the most different kinds of work. Every word added to our vocabulary extends the possible range of our thought. This is an advantage that can not be overlooked. Writing not only helps to a knowledge of words, but to a correct use of them. It not only extends the range of thought, but clears its horizon.

One great need of our present system of education is accuracy. There need be no pedantry about it. We want true scholarship. "Writing maketh an exact man." We need much of it, more than we have. It is an easy thing to imagine we understand a subject; but there is nothing that undeceives us so quickly as to try to state it clearly. When we come to this, we find that

what we took for ideas, are but ghosts of them.

Again, what we are accustomed to satisfy ourselves with in verbal statements, often makes a poor appearance in writing. It is not only meagre, but obscure. It grasps no complete thought. This may be obviated by making abstracts of the subjects we are studying, in order that in a small compass of unequivocal words we may have the thought before us. Sometimes longer statements are desirable, that we may assure ourselves that the details of the subject are firmly grasped.

In learning the languages, I am persuaded that entirely too little writing is practiced to attain the desired accuracy. Verbal translations seem quite lucid, and often we would fain call them elegant, until we commit them to paper, where the eye may assist the ear in detecting their deformities. Thus is knowledge tested.

I am far from wishing to depreciate other methods of training the mind to think. I only wish writing to have its proper place. There is one thing that writing can not give a man so well as speaking, that is, readiness. But readiness can not be acquired in the true sense until we are acquainted with the correct uses of words. It is the office of writing to give us a stock of words, with their true meanings, that we may attain readiness in thought and speech.

MATEO JUAN.

ARISTOTLE.

ARISTOTLE, the distinguished founder of what is termed the Peripatetic School of Philosophy, was born at Stagira, in Thrace, in the year 384 B.C. He removed to Athens when but a youth of seventeen, and was one of the first to enter the school established by Plato, on his return from Sicily, and he was during his whole life one of the most devoted friends of his distinguished master.

Aristotle possessed a mind of wonderful range and strength, but of a different type from that of Plato; hence, although he admired his teacher, he differed from him very decidedly on some points. Plato, like Socrates, possessed a highly metaphysical

mind, and gave precedence to moral philosophy over natural science, and took delight in speculations about the immortality of the soul and its future state. Aristotle's mind was of an observing and logical type; hence he had little faith in a future existence, and taught that a knowledge of those sciences which pertain to matters mundane is of primary and paramount importance.

He is justly styled the "father of natural history" and the inventor of logic. His mode of reasoning was the inductive, and by some he is regarded as the discoverer of that system of reasoning, but it had been in use long before his day. He simply gave it prominence at that period as Bacon did in his time.

Aristotle was not only a close observer and strong analogical reasoner, but he was a man of very pronounced opinions and strong prejudices. He was what in modern times would be termed an "egotist;" his systems of science, logic, philosophy, etc., were perfect—in his opinion—and he taught, therefore, as one armed with the authority of ultimate truth. While other philosophers doubted, giving their views for what they were worth, Aristotle dogmatized. This, I presume to say, is why his system survived during the eclipse of thought, known as the Dark Ages. It was orthodox to be a disciple of Aristotle, but rank heresy to believe in the sublime teachings of Plato, not only in Christian, but also in Mohammedan countries.

The priests everywhere encouraged the study of Aristotle, and indeed the Church enforced the acceptance of his philosophy upon the people. This is to be accounted for solely on the ground that he, being a materialist, troubled not himself with spiritual matters, but confined his researches and speculations to material and intellectual subjects, leaving the realm of faith and speculation to the clergy, who are ever tolerant of the scientist who is careful not to invade their domain, or who may be wholly indifferent to spiritual matters. The father of Aristotle was chief physician to Philip of Macedon, who, on hearing of the fame the young philosopher had won at Athens, sent for him, and gave him charge of the education of his son Alexander, known in history as Alexander the Great. The king paid him a great compliment by saying, that he considered the fact of his having a son born to him, of less consequence than the other fact that he was born in the age of Aristotle, and could have so great a philosopher for his master. I think it not unjust to Aristotle to say that had the young prince had Plato for a master, and had he been as devoted a disciple of Plato as he was of Aristotle, he would not have sought his highest happiness in political ambition, nor would he have died in a drunken debauch in the prime of life. Aristotle is said to have been an exemplary man in his private life, and although his influence proved injurious as well as beneficial, perhaps more injurious than beneficial, yet he is to be credited with pure motives. He was not a philosopher in the higher and better sense of the term. He could not soar with Plato, for the reason that he did not possess the moral perceptions, the spiritual aspirations, and the causative reason of this prince of philosophers.

When about forty years old, Aristotle visited Asia Minor, and while there, a guest at the court of Hermias, Prince of Atarneus, he became enamored of Pythias, the adopted daughter of the prince, and after a short courtship married her. Some years afterward, on the assassination of his friend and patron, Hermias, he fled with his wife to Mitylene, and it was from here that he removed to the court of Philip to become the tutor of his son.

Alexander having succeeded his father on the throne in the year 336 B.C., Aristotle returned to Athens and opened a school, which he named "The Lyceum." The term peripatetic, as applied to his system of philosophy, originated in his habit of walking about as he lectured. The people of Athens denominated him the Peripatetic, or Walking Philosopher. The term had no significance when applied to his system, and has been a stumbling-block to students of both history and philosophy. Among the distinguished men who were ranked as disciples of Aristotle, Callisthenes, Demetrius,

Phalaris, and Theophrastus, may be mentioned.

His books are: 1, Dialectics and Logic; 2, Physics; 3, Mathematics; 4, Metaphysics; 5, Ethics; 6, Politics; 7, Economics; 8, History; 9, Miscellaneous writings.

Owing to the prejudice against his writings, arising from the fact of their popularity with the Catholic priests, they have not been studied or even examined much since the Reformation. And although I predict they never will rank with the "Dialogues" of Plato, yet, as prejudice subsides, they will again become standard works, not in the sense of being authorities, but as the highest thought of one of the old masters. A record of mental achievements which the world can not afford to lose.

Aristotle had the grace to say, that although compelled to differ from Plato, and to teach a different system, yet he honored and loved his former master to the day of his death, which occurred at Chalcis in Eubœa, in the year 322 B.C., and in the sixty-second year of his age.

THE SYSTEM OF ARISTOTLE.

I have said that Aristotle differed from Plato radically; some hints have also been given of the ground of that difference; but I am sure the reader will be glad to have me epitomize the system of the great Stagyrite; a system which reigned supreme in scholastic circles for more than twelve centuries. Aristotle was a scientific materialist. Hegel says, "Plato was a rational idealist, Aristotle a skeptical empyric."

In opposition to Plato's doctrine of ideas, he presented the doctrine of facts. Things only exist, and things can only be known by sensation. Philosophy is simply the deductions of science, arrived at by observation and induction. The true method of investigation, says Aristotle, is to collect all the facts or particulars, and then deduce from these the causes of all things and their actions. This he accomplishes by a system of induction similar to that adopted by Bacon. He calls it the art of reasoning; an art, man alone possesses; brutes can not reason, because they can not correlate memory into experience, which is the art of induction.

Art commences, says Aristotle, in his work entitled "Metaphysics," when, from a great number of experiences—observations—one general conception is formed, which will embrace all similar cases. Thus if you know that a certain remedy has cured Callias of a certain disease, and that the same remedy has also cured Socrates, and several other persons, that is experience. To enlarge this experience till you know that this remedy will cure all persons attacked with that disease is art.

Well may Mr. Lewes say: "Here is the fundamental idea of positive philosophy." Comte is but a disciple of Aristotle, and not the great original thinker he is credited with being.

It is a matter of no little surprise, that Comte should have successfully, as he has, imposed the idea upon the world that he was a profound philosopher, even deceiving Stuart Mill to the extent of being able to tax him for his support on the ground of his being the founder of a great system of philosophy.

Aristotle had some conception of ideas, but these could be arrived at only through facts. Plato taught that facts were the product of ideas. Aristotle said, "Ideas are deductions from facts."

Aristotle is regarded as the greatest logician of all time. A glance at his system of logic can not, therefore, be a waste of time.

Logic, says Aristotle, is the science of affirming the most active and useful operation of mind, the highest function of thought; indeed, he at times used the terms logic, and thought, as though they were synonymous. It is the mind's conclusions based on the sensations produced by objects. Sensations are always reliable, but you may draw false conclusions in regard to them; hence, logic is of two sorts, true and false. Each single thought is true, but when you put two thoughts together, and draw a conclusion, that conclusion may be false. Thoughts are a series of propositions. To understand the nature and relations of propositions is the art of logic.

He was syllogistic in his mode of reasoning. Certain propositions being laid down, a necessary conclusion, distinct from

the propositions, may be drawn without employing any idea not contained in the propositions. For example, all bad men are unhappy. Every tyrant is a bad man.

Conclusion: All tyrants are unhappy. All conclusions owe their existence to anterior knowledge, which forms the major proposition of the syllogism; the conclusion is simply the application of the general to the particular. Thus if we know that tyrants are unhappy, we know it because we know that all bad men are miserable, for the middle term tells us that tyrants are bad men.

To know is one thing, to demonstrate our knowledge by giving the syllogism which expresses it is another.

It is one thing to know a thing is so, and quite another thing to know why it is so; hence the two orders of demonstration: the one proving the cause by the effect, the other the effect by the cause.

With some latitude in the way of assumption, Aristotle's system of logic is a complete and beautiful system; without this it is so defective as to be of little use, save as a means of training the mind. Until Bacon, it was standard in all the schools of Europe, and some knowledge of it is still regarded as essential to a liberal education.

ARISTOTLE'S METAPHYSICS.

By common consent, Aristotle has been classed with the metaphysical philosophers, but, as we have already stated, he was not a philosopher in any true sense.

He wrote a book which he called "Metaphysics," but this work controverts almost all the principles of ontological dialectics.

For example. The fundamental idea or proposition of metaphysics, is that the cause—essence—of things is spirit.

Aristotle says: Matter is primary. To matter he gives those attributes which Plato gave to ideas, and the subtle forces of nature—including the human faculties of intellect—are but properties or correlatives of matter.

Matter, he says, exists in three forms. Objective, to the senses, as the earth; second, celestial bodies, the stars, which, although sufficiently gross to be perceived by the senses, are yet imperishable; third, God, the absolute, eternal, unchangeable, substance, thought.

Here Aristotle is seen to reach an approximation to the sublime heights of philosophy, but his method not being philosophical, his conclusions are of little value. Lord Bacon has most clearly shown the futility of his effort to reach the unknown through the known, and by doing so he broke the chains of dogma by which Aristotle had held the scholastic world in slavery for almost two thousand years; thus performing a service to humanity of inestimable value. Aristotle was a man of immense grasp of mind, but his mode of thought was scientific rather than philosophical, hence his failure. Had he lived in this age he would rank with Humboldt, Cuvier, Priestly, Huxley, and Tyndall; indeed, for breadth and force of thought, he would probably outrank the whole army of scientists and speculators since Bacon. He had no superior in Greece in these respects, with the single exception of his great master, Plato.

T. AUGUSTUS BLAND, M.D.

CHEERFULNESS.—It is not very difficult for a person to be sunny-tempered when everything is going prosperously with him. When a man has made two or three hundred dollars a day, and all the signs are favorable for his making the same amount to-morrow, how good-natured he can be! When the hour comes to close the store, he takes his hat from the peg, buttons up his overcoat, and starts for his home with the feelings of a king.

But times change. The business sky looks darker and becomes black with ominous clouds. Buyers are timid; sellers are suspicious. The current of trade shrinks. Goods remain unsold; household expenses crowd; small bills accumulate; duns grow imperative. Ah, now is the time, friend, when good nature in you is a virtue; yea, a grace. Now is the time for you to show what stuff you are really made of. If you have faith in something nobler, higher than this world, let that faith be manifest in your conduct. Do not take a gloomy face and a sour temper to your household. That household has troubles and clouds enough in its own sky.—*Golden Rule.*

HOW TO TEACH.*

THE FACULTY OF WEIGHT.

ITS NATURE AND USES.

WEIGHT, or ponderability, is an intrinsic quality of matter. Things weigh more or less according to the amount of matter which they contain. The faculty of Weight recognizes this law of gravitation. Bodies are attracted towards the earth, and the earth itself is attracted towards other bodies, in proportion to the size, weight, and distance of those bodies. Man and animals are adapted to this law of gravitation by means of the faculty of Weight. It gives the power to balance, or the sense of equilibrium. Those in whom it is strong, obey the law of gravitation in respect to themselves with more ease, accuracy, and grace than others. Some men walk as if they were on springs, and their motions are easy, harmonious, and graceful. Others walk with a lurching, swinging, lounging motion, as if it were hard work to regain at each step the equilibrium.

The process of walking, simple as it appears, is rather complex. Imagine a man standing, harmoniously balanced. He desires to walk; he lifts one foot, and by a muscular effort, or by the weight of the lifted limb, his body is caused to lean forward, and inclines to lose its balance. He restores the balance by putting out the lifted foot, and shifting his weight to that foot, and repeats the process. Now, in order to be graceful, when he lifts one foot he must maintain the equilibrium of body, by a slight effort of muscle, until he gets the other foot down. In this way he can walk so as to keep his body and head moving in a direct line. But if, when he lifts one foot, he surges over the other way to balance the lifted limb, when that foot comes down he has to lean the other way to balance the other lifted leg, and thus his head swings from side to side, and his brawny shoulders lurch hither and thither like a vessel in a rough sea, and the whole process of walking to him is laborious and anything but graceful.

If one will observe horses, he will find the same difference in their movements which are seen in different men. One horse will trot like a fox, and his movements will be easy and smooth, and therefore he will be a good saddle-horse. He will roll off the miles and not wet a hair with perspiration, while another horse, trotting by his side, or separately, going at the same gait, will foam and froth, and be dripping with perspiration. He may really be stronger, pull a heavier load, and be able to go as fast as the other, but he does not move as easily, because he does not balance himself. Observe a horse, as he rapidly turns a corner, how he throws the weight of his body inward, and the driver, sitting on the seat, leans inward to keep himself from losing his balance and being thrown from his seat by the centrifugal force. Watch a circus-horse as he goes around the ring—the track or the path being made at an angle of twenty degrees' inclination for the bracing of the feet of the horse; he leans inward perhaps twenty degrees, as his rider also does, to keep their equilibrium. In this way the law of gravitation and the centrifugal force harmonize or balance each other; and it takes a strong develop-

* From "How to Teach, according to Temperament and Mental Development; or, Phrenology in the School-room and the Family." By Nelson Sizer. S. R. Wells & Co., New York, Publishers. Price, by mail, $1.50.

ment and a nice adjustment of the faculty of Weight to make a good circus-rider.

We once employed an artist to draw some portraits, illustrating the development of the different organs. We placed the photograph of a noted man before him without thinking to give the name, and when the artist came to that part of the brow which indicates the organ of Weight, just above the inner edge of the eye-ball, he said: "You do not want that caricature—that bat's-wing appearance put in?" In fact the organ of Weight was so developed that it looked like the uplifted wings of a bat across the inner angle of the eyebrow, like a brace in carpentry, filling that portion; and we replied that the part he wanted to leave out was precisely what we wanted of the picture—that it was what we were painting it for. And when he asked to know who it was, and we told him it was Blondin, the great rope-walker, he opened his eyes, and was satisfied to paint the picture as it had been taken by the sun's rays, in photography, from the man's own face.

USEFUL TO MECHANICS.

Workmen who have this faculty well-developed understand the force of the blows they are required to give to accomplish certain ends. For instance, in the familiar process of cracking walnuts—and our young friends understand something about that—we give one light blow to see that the nut is not going to slip, and then with one sharp blow the work is accomplished, and a person who knows how, will crack fifty walnuts in succession, with one tap to regulate it, and one blow to do the work; and if it happens that the blow he supposes to be sufficient does not do the work, he is astonished. Another person who may have cracked just as many walnuts, but who is deficient in the organ of Weight, will strike three or four blows, increasing every time in force, and by and by crush the walnut and make it fly all over the house, and perhaps bruise his thumb or finger.

If we were lecturing to an audience of mechanics, we would give illustrations, in several departments, that they would understand instantly. We have seen a carpenter who would drive his nail nearly home, and continue to give heavy blows until his hammer mashed and marred the wood. We have seen a chopper smite a small stick and drive the axe into the ground; whereas, if he had given a light blow, it would have been sufficient. Some people are always breaking, marring, and bruising everything with which they have to do; and when they are walking about the house, there is no spring to the walk, but a heavy trudge. They will slam doors, and it is rattle-bang from morning till night. Clerks in stores show the same rude, unregulated use of force; and if they happen to get into a crockery store, they break more than they earn. Prize runners and walkers avoid tiring themselves, or wasting their strength, by assuming a well-balanced method of motion. They waste no strength by swinging the arms, or in rolling the body from side to side. They obey the law of gravitation through the action of the faculty of Weight, and thus win the prize against those who walk heavily and surge from side to side.

The seaman requires a good development of this faculty, because he has to climb and maintain his balance in lofty and difficult positions. He who has this consciousness of power to balance, can climb without feeling frightened or giddy. People who have the

organ of Weight deficiently developed get sea-sick. Those who are able to keep their balance nicely, and adjust themselves to the rolling motion of the ship, so as to keep the brain from swinging this way and that, will go across the Atlantic without getting sea-sick; but those that swing with the ship, and bring up with a lurch, and do not know how to adapt themselves to the motion—or, in other words, keep their balance—get sick. Some men riding horseback, churn, churn, churn, at every step of the horse, tiring the man and wearying the horse. They do not seem to know how to ease their own weight by a gentle pressure upon the stirrup, and a slight muscular effort in harmony with the motion of the horse. When a person goes pushing through a crowd, and jostling everybody, it does not necessarily arise from rudeness and carelessness of disposition. It may be a lack of power to balance. Witness persons dancing who have a good development of the faculty of Weight. All the motions are easy, and they swing and sweep in harmony with the music, and with those that are moving with them, and their motions would indicate that they were light as gossamer, though they might belong to the "heavy-weights;" while another person, weighing 130 pounds, will seem to jar the house, jostle others, rudely hitting them as he passes, the blows received from his shoulders being exceedingly heavy and very uncomfortable to bear. When one takes the hand of such a person in the dance, it is not a light, easy, self-poised hand, but a drag for the time being on the one who holds it. We have seen men, who weighed 250 pounds, whose motions on the floor did not seem to jar the house; nor did they bear so heavily on the hand as some who weighed half as much, and who in walking would step on the heel and let the whole weight come crushing down without any effort at adjustment or modification.

It will therefore be seen that the faculty of Weight is useful in a thousand ways with respect to safety, in regard to ease of motion, correctness of effort in mechanics, and in an economic sense relating to breakage and damage, and also as a means of ease and grace of motion in society. It is a great aid to what is called culture and good manners. A man may have all the classics, all the ethics and mathematics in his head, but if his muscles do not obey the law of gravitation, he walks like a wooden man among men—jostling, jerking, and offending anybody that is in his way. Pope says: "Those move easiest who have learned to dance;" and people are more likely to dance if they have enough of the faculty of Weight so that each motion is done with facility and agreeableness to others; but one who can not turn a corner without tumbling down, who can not make a curve without awkward effort, is not very likely to move well in the mazy dance. He feels that he is going to run against everybody, and everybody gets the same idea. Such persons are not sought, except through courtesy, as companions in the dance; and the lack of this faculty may make persons of great talent and excellent worth neglected in the drawing-room, because when they move they do so at the danger of everybody's toes, and there comes to be a feeling of repugnance, and dread, and fear respecting them.

The teacher can do much to cultivate grace of action in the pupils in school, in respect to the walk and the motions. If there be marching, if there be elocution, there will be a good opportunity for monitions—for instructions

on the subject. Boys in school should not be permitted to stroll and stamp about the room with their heavy boots, as if the boots had a cast-iron man in them, or a wooden boy—a person without soul or ambition. They should be kindly asked to try that over again, and some boy, who knows how to walk with grace and ease of motion, should be asked to set an example; and though it might mortify the boy who was thus criticised, it would cure him of a habit that would mortify him ten times worse by and by. At any rate, it will be an admonition to every person in the school. If the teacher will watch, he will see that it will be taking effect with the next boy or girl that walks across the room. There will be an effort, in accordance with instructions, to do it with grace and propriety, suited to the place and the occasion.

In penmanship the slope of the letters will be regulated largely by the faculty of Weight, and if the law of form requires that a given slope shall be made in the letters, and they are sloped because that is supposed to be the easiest way to make them, the faculty of Weight will help appreciate the variation from the vertical required by the letters. If one letter leans like the tower of Pisa, and another stand perpendicular like a church spire, another like the raking slope of a ship's mast, and these all occur in a given line or word, the faculty of Weight is offended; but let them all lean in one direction, as grain pressed by a breeze leans in one direction, then the faculty of Weight is satisfied.

If we look at the picture of an officer standing by his horse, with his elbow on the pummel of the saddle, and of course leaning towards the horse, we are satisfied with the attitude of the man, because we see what he leans on; but if we cover up the horse and the elbow of the officer, and his body is seen to lean without any visible means of support, it offends the faculty of Weight, which perceives the error and gives us pain.

We judge of level by the action of two faculties—namely, Weight and Form. Weight gives us an imaginary, perpendicular line. Our own center of gravity is expressed by that which is vertical, when we have anything to express it by; and when we have nothing to express that line, we carry it in imagination, and we may look at something that we may wish to estimate as to whether it be level or declining, and we stand erect—for it would be difficult to judge of it while reclining—and compare that which is horizontal, or nearly so, with the perpendicular line we have in the mind, and then the faculty of Form tells us whether they constitute a right-angle. When we look at picture-frames hanging, we have the side of the frame to aid us; but if the frame be irregular and scalloped, and it has no straight line, then we take the whole mass into view, and as we may say, draw a line through its center, and see whether that perpendicular line which is suggested by the faculty of Weight shows on each side of it an equality of bulk. Sometimes people think they judge of the plumb and the level of things by comparing them with something else; but if one stands on a side-hill where there is nothing within the whole range of his vision that is perpendicular, if he has a straight pole he can set that in the ground and walk around and consider, without any regard to the ground it stands on, or the sloping hills in the distance, whether it corresponds to his internal sense of the perpendicular, and he will plant it so that he shall be almost accurate in reference to its vertical position, and do it solely by the faculty of Weight. Now if, when that

is planted, one wants to see whether the ground is level, he can, with his faculty of Form, estimate the angles which the surface of the ground forms with the line of the pole he has erected.

The discussion of the faculty seems dry, perhaps, because people have not been accustomed to think in that direction; but if the faculty of Weight were to be disturbed, it would seem to throw everything into confusion. The man who takes much intoxicating liquor seems to have the faculty of Weight disturbed more than anything else. He complains of the width of the road much more than he does of its length. Nothing is more confusing to a person than to have that swimming of the head, or giddiness, which disturbs the balance, whether it arise from a rush of blood to the head, or from some other cause.

The faculty of Weight, then, blends with all our motions, and it is a factor in all that we do. If it be weak, it may be cultivated by the training which will keep it active. It is sometimes so active in persons that many things annoy them, because the law of gravity is disturbed. A crooked stone fence, that looks as if it were toppling to its fall, would make such a man very unhappy, and he would be inclined to overhaul such walls—to brace and straighten up fences and gate-posts. A child that has the faculty well-developed will learn to walk early, and one that is weak in it will tumble down often, and will rarely attempt to climb, and be unsuccessful in any such attempts; while others will climb like monkeys, never fall, balance anywhere, learn to ride, and the more fiery and spirited the horse the better they like it.

THE FACULTY OF LOCALITY.

STUDY OF GEOGRAPHY.

The science of geography depends chiefly upon the faculty of Locality, or, it might be properly called, local memory. Numerous considerations show this to be a special faculty, and that its strength and activity bear no special relation to the vigor of the general intellect. In the lower animals it seems to be an intuitive instinct, not dependent upon the general intelligence of the animal.

Dr. Gall, when a boy, was very fond of the study of natural history. He liked to take young animals and raise them as pets. He hunted for birds'-nests, and watched the development of the nestlings; and when he went into the forest to find nests, or to set snares for birds, or traps for animals, he unfortunately was not able to find them again. Not willing to give up his researches, yet unable to return to the nests, or to find the snares and traps which he had set, or to return to his home readily, he was obliged to take one of his playmates with him, who cared but little for birds or their nests, yet he easily remembered the location of every nest and trap; and though young Gall was the master of the enterprise, his playmate was the pilot. This method was adopted from necessity, but it made an impression upon Gall's mind which, in after years, laid the foundation of the discovery and the philosophy of this organ. His associate remembered the location of the nests, but cared nothing for natural history; while Gall, eager in reference to the subject-matter of inquiry, was unable, though anxious to do so, to find his way to the nests he had before discovered, or back to his home again. Gall lacked the faculty for geography—his associate possessed it in a high degree. Subsequent investigations led to the location of the organ in a particular portion of the brain, and the application of the name it bears.

ITS LOCATION AND RATIONALE.

The organ of Locality is situated in each hemisphere of the brain, about an inch outward from the middle line, half-way from the brow to the top of the forehead, and when it is large it gives fullness to that region of the head. The nature of the faculty is adapted to the fact that no two things can occupy the same space at the same time, consequently everything must be located in respect to every other thing—above, below, or laterally. And since man occupies a place, everything else, as it respects him, must occupy some other place; and the faculty for remembering places—Locality—gives him the idea of relative direction or position.

Those in whom this faculty is well-developed and active, remember not only the cardinal points—North, South, East, and West—but *all* the points of the compass, and are able to recall them, and feel an ever-present knowledge of them. Those in whom the faculty is poorly developed have little idea of the direction of anything from themselves, and have to manage in an artificial manner to keep in mind their own location. Instead of knowing that a place is east of them, they know they have to turn to the right to go to it, and to the left in returning home; and if they were to forget this idea of right and left, the idea of intrinsic location would give them no clew to the place.

ANIMAL INSTINCTS IN LOCALITY.

Certain animals have this faculty in great perfection. A horse will find the way when his master is lost. It is a well-known fact that horses which are used by persons who carry the mail and distribute newspapers along the road for many miles, and that the horses of milkmen and physicians in cities, learn the several stopping-places; and when a customer is lost for the newspaper, or for the milk, or when a patient has recovered, so that the daily visits are suspended, it requires some time to train the horse to go by without trying to stop. We have often seen a horse that would go through a whole street, twisting about from house to house, and across the street, with a milk-wagon. While the man was serving one customer, the horse would go on to the next, if it were near, and when the last house on one side of the street had been reached, the horse would turn himself around and stop at the next place, on the other side, on the way back. This instinct in the horse, which adapts him to his natural state, is brought into use, in the service of his master, in these and many other ways. A horse being sold and taken 200 miles, and having been again sold, and resold, has been known to stray away from his owner and work his way back to his original home, or the home he liked best. It is known that dogs can be removed from on shipboard to strange countries, and when placed on the track of their game will follow it all day, over hills and mountains, through ravines, forests, and jungles; and when the game is taken, or the chase abandoned, they seem to know the way to the place where they had their breakfast, and will start instantly, in a direct line, for their temporary home. In every farming neighborhood it is understood that if a pig two months old be carried miles from his home in a wagon, in an open barrel, which offers him only a patch of sky to look at, he will get out of his enclosure, if possible, and go straight home—even swimming rivers—paying no attention to roads, but wallowing through the tall grass, cornfields, or forests, until he finds his native place.

NELSON SIZER.

(*To be continued.*)

FORCE IN MATTER AND MIND.

WE should comprehend the principles of every branch of science to enable us to perceive how the uniformity of force gives method to atoms and harmony to the material universe.

Ancient philosophers believed the atmosphere to be a simple element, and some of the Grecian savants regarded Jupiter, the god of Olympus, as a symbol of the air. Science has dissected that potential god and exemplified the anatomy, the physiology, and the chemistry of his parts. When the atmosphere was decomposed and oxygen utilized, physiology was placed on the rational basis of physics and chemistry, presenting to view clear statements, complete inductions, and exact methods. Natural philosophy now teaches us that light, heat, and electricity are but different modes of motion, and these but different manifestations of force; that force and matter are alike indestructible, and gravitation invariable; and that every phenomenon and atom in the universe of matter result from the antagonistic and reciprocal action of these forces; that everything is evolved, and all nature is a homologue.

Astronomy has taught us that the sun is not an immaculate orb of fire circulating around a great flat world on which we live, but that the combustive matter consumed by the sun in each hour is equal to six tons of coal for each square yard of his surface, and that if the whole orb were a mass of coal it would, without receiving accretions from meteoric matter, in 5,000 years burn to a cinder. And yet this fiery orb holds paternal kinship with our earth. Chemistry has taught us that the same force that holds the inorganic worlds in equilibrium and harmony, obtains in the world of organization. Physiology and comparative anatomy teach us that organic bodies differ only in degree of organization. They are the same in their life, cell development, and chemical constituents. In a sentence, I will say there is but one scale of organic bodies. The vegetal organism develops by involution or duplication of the leaf upon itself, or upon its fellows in the same bud. If there is adhesion there is arrested development, and thus are formed the flowers, grain, and fruit. The lowest animal embryon is just a little higher in the scale than the highest adult plant. Here the type is the cupped cell, and the nutriment a more refined pabulum.

Biology presents to us a method the very similitude of mathematics. We have the cell or physiological point, then the line of cells, as in the baculus; and the line when flexed upon itself forms a surface, and the involution or folding of this surface upon itself forms a solid. Geometry proceeds by the same steps—the point, the line, the surface, and the solid. The simplest cell we can behold is a complex organism presenting differentiation, organization, and life.

NERVOUS FORCE.

The material universe is made up of atoms and ether. These atoms are solid centers of force, and the ether is the medium through which the forces or motions of the atoms are transmitted. Similarly the nervous system is composed of two kinds of elements; these are cells and fibers, which are united. The cells of the brain and spinal cord have diminutive prolongations of fibers, besides which their cells are usually united by but one real fiber; but in other nervous tissue the cells are united by two fibers. Physiologists believed until recently that nervous force is generated in the cells only, but it is now a veritable fact that this force may arise in the fibers as well. Brown-Sequard injected blood into an amputated limb, and thereby reimparted nerve-force to the dead tissue. And according to the same authority, even the brain, after it has been separated from the body, may be thus brought to exhibit appearances of life. Then, while nervous force may be generated in any nervous tissue—in the cells, fiber, ganglion, or cord—it is also true that the cerebellum is a great laboratory for the production of this force. The nervous system presents various manifestations of energy, but there is but one nerve-force. Just as in physical science there

are many phenomena of force, but one force.

The differences in sensation depend upon organic peculiarities of different nervous tissues. For the same reason associated with differences in influencing agents, muscles may be paralyzed or contracted; sensation increased or diminished; and volition intensified, or reason dethroned. Diminution and exaltation of nervous force are both characteristic of certain organic lesions or morbific elements. Either may exist alone, or both together as phenomena consequent upon previous lesion or agency. And either of the above conditions may become obvious indications in the treatment of disease. Pressure on the neck over the regions of the carotid arteries will often relieve congestion of the brain, or cut short a fit of epilepsy or hysteria. But the pressure acts not so much by direct mechanical occlusion of the carotid arteries as by irritation of and diminution of force in the parvagum nerve, by which the action of the heart is enfeebled, and by diminishing the force of the cervical sympathetic nerve, and thus producing contraction of the cerebral vessels. On the other hand, a dose of strychnine will develop an excess of nerve-force. But the normal source of this force is oxygenized blood, and moderate muscular exercise. Excessive exercise, however, whether physical or mental, consumes and diminishes the nervous energy. Hence we do not feel like putting forth mental effort when we are exhausted by physical exertion, for the nervous force has been converted into physical force.

And here again nervous force finds in physical science an obvious analogue. Not only are all the apparently converse vibratory activities of nervous tissue necessary corollaries arising from a single force, but this force is convertible into physical force, which is again convertible into various activities and phenomena, the common name of which is force, the common property of which is motion, and the common expression of the various activities of which is mode of motion. Grove placed a silver gridiron on an insulated plate in the sunlight, then applied a galvanometer, and found that the sun's rays were converted into chemical action on the plate; electricity through the wires, magnetism in the coil, sensible heat in the helix, and motion in the needle.

Physiology is an exact science. In its triumphal march it has passed the bounds by which our fathers limited its legitimate domain. Already it has bridged the abyss which yawned between it and physical science, and the reasonings of early philosophy have been set aside or brought into reconciliation with the facts of science. Nervous force must be defined in terms of electrical action or physical force. This brings to view other facts—facts bearing upon a question which has been held as too sacred to be approached only on reverential knees, viewed with the eye of faith, and solved by the traditions of mythology or bibliology.

Psychology was developed and is moving onward like a gigantic world by the mutual action of two conflicting, yet coöperative forces—an antagonism of forces tending alike to inertia and to motion. At first view we do not in this see force so plainly operating as when a massive body is moved by an obvious power.

And yet obvious enough are those physical and psychical disturbances and perturbations resulting from explosive discharges of nervous force upon the important centers. When this force culminates upon the emotional centers, the sufferer is said to have *hysteria;* when upon the motor centers, the effect is called *epilepsy;* and when this force is discharged upon the volitional centers, the patient is said to have *mania*. It is, however, in mechanics that force is manifested in the most obvious manner; but it is in no scholastic or metaphorical sense that we apply to these manifest uniformities the self-acting entities and generalizations of mental activities. Apparent, then, in incipient psychological activities are two coöperative forces—kinetical and statical, respectively producing changes and re-adjustments.

In the development of psychology the statical force or factor is manifested through the divinity in our mentality, and from this springs theology in its varied acceptations as

parent thought to a solution of the whole array of problems in the science of mind. On the other hand, the kinetical force or factor is manifest in the whole range of physical science. Psychology was evolved by evolution of physical science. By the application of physical methods and conceptions, mental processes have been interpreted, prime facts pertaining to the mind established, and psychology in a degree relieved of the mists of metaphysics and the dogmatism of theology.

Primitive man saw in nature the impress of a God of "gods;" felt in himself the consciousness of a soul or of self-duality; and perceived in the Cosmos phenomena which impressed him with the idea of a creation; but it is by studying the laws of matter, and the correlation of force and matter, that he comprehends his environment; then by studying the structure and functions of his own organization, his own physical and mental endowments, he better understands himself, his relation to God, and God's relation to the Cosmos. To man in a state of barbarism evil spirits project the thunderbolts, demons ride on the storm, and the gods rule the Cosmos. Plato advanced a step, but considered that the Cosmos was a rational, divine, and immortal being, and that the gods dwelt in the celestial regions around, and man and the lower animals in the central sphere. And he insisted that the cranium of man is a miniature Cosmos, in which dwells an immortal soul like the soul of the great Cosmos; and that in the body proper are two mortal souls, one residing in the chest ruling the passions, the other in the abdomen ruling the appetite, and that these two and the one in the brain form a trio of souls in one body. So we see that Plato began to separate the gods from the Cosmos by assigning to them definite localities.

Next came Aristotle and merged Plato's trio of souls into one. This was the greatest stride metaphysics had ever made; but he brings forward the attributes of the platonic souls as the nutritive, sentient and noëtic elements in man. These nutritive and sentient factors proved to be the nascent truths of physiology and psychology. This philosopher conceived that the soul of man is mortal, but that the soul of the Cosmos was immortal. After the time of Aristotle metaphysical thought was almost dormant till the middle of the thirteenth century, when a discussion arose between Anselm and the Greek fathers respecting the independent existence of God, and His triune elements. In the fifteenth century the schools of Italy taught the doctrine that nature is a factor distinct from God and man. In the thirteenth century, and before either of the other two factors in the primitive Cosmos were isolated, the soul was differentiated. Now arose the most exciting controversy of mediæval times. It was the culmination of the doctrine of the Arabian Averroes on the one side, and the scholastic philosophy proclaimed by Thomas Aquinas on the other. Both were followers of Aristotle, but one looked from a Mohammedan and the other from a Christian standpoint.

According to Averroes the *Nous* was common to humanity and dwelt in each individual till the death of the body, and then returned to the celestial body—there was but one common immortal soul. This was an improvement upon the doctrine of Aristotle, and as certainly Aquinas improved upon this when he asserted the individuality and unity of the soul. But the next advance was to self-consciousness; this was made by Descartes, who said, "*Cogito, ergo sum*"—(I think, therefore I am). Thus the conception of the distinct individual existence of mind as apart from God and nature laid the foundation of the science of psychology. In tracing the science of mind from its *incunabula* (cradle) we find different names applied to the subject marking the different stages of the development of thought. Thus the pagan idea was expressed by the word Cosmos, or cosmology, which developed into theology, then into metaphysics, and finally into psychology.

Next observe the correspondence of ideas. As the crude cosmological ideas became theological and finally philosophical, our ideas of the infinite have been tending steadily from the negative to the positive. The primitive ideas of the Trinity and of

the Incarnation have led to discussions, and these to investigations which have powerfully developed the science of mind.

A transition from theology to psychology was made by Locke when he investigated "Original Certainty" and "The Extent of Human Knowledge;" by Berkley when he investigated the nature of "Perception;" by Hume when he wrote on "Human Nature;" and immediately followed his own chapter on "Miracles" with one on "Necessary Connection." Reid wrote on the power of the human mind to refute Hume, and became the leading psychologist of Scotland. Thus it is seen that theology has ever been a common portal leading to a higher development of mental science.

Now look for a moment at the consensus of physical and mental science, and especially how the latter has been fostered by the former. When mathematics was separated from theology, man was far back in the cosmological period. Nothing was then known of mental science, so that concerning man's mentality it was then said, "*Hominis considerare pertinet ad Theologium ex parte animata,*" (It pertains to theology to consider man's nature on the soul's side). But now the man of science should be the one to have the most reliable knowledge of man and of the Deity. By applying physical methods to the phenomena of mind, reason and relation are seen imbedded in the same matrix, or in other words, to reason is to compare and examine relations. The speed of thought is measured as well as the velocity of the planets; intelligence, yes, reason, is traced along the chain of animal species, increasing with each grade of ascent in organization. Then, viewing the whole field of vision at once, we see that evolution, transmutation, and correlation are stamped on every thought, every force, and every animate form.

As we trace living forms from the cryptogam through their varying environments and conditions to the highest species of man, so we trace the mind from an opaque heterogeneous monad of a rude cosmology along its progressive stages of development, till it now appears as a luminous orb in the psychological firmament. So physical science is seen rising from the simplest relations and the merest qualitative perception of the barbarian, and by successive increments its light now dazzles the eyes of its votaries, illumines a world, and elevates the people of every nation, clime, and race.

Life and organization are transient conditions of matter resulting from force. There is nothing distinctive in human life but what results from distinctive organization when viewed in relation to the entire scale of animal existences; nothing in the mental and moral attributes that can evade the processes of material change; no impress upon matter or mind that is not the legitimate result of an efficient incipient force.

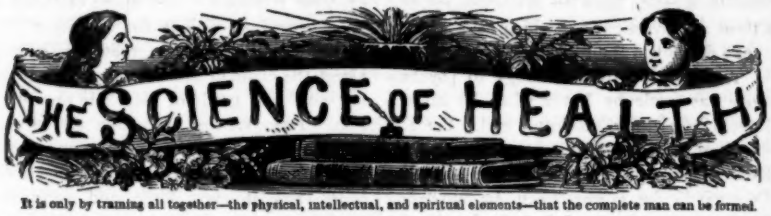
CHARLES I. CARTER, M.D.

A CRYSTAL GOBLET

THAT ONCE BELONGED TO ABRAHAM LINCOLN.

SHALL I ever dare to touch
With my lips this crystal brim?
If I ever, may I never
Without taking thought of him,
Whose pure life it typifies
Unto reverential eyes.
We, who proved him,
And then loved him—
We have nothing else to give—
Long as we shall love and live—
But these tears of late discernment,
This late crown whose flowers sprung
From the blood-drops that were wrung
From that heart, that never any
Lords or ladies of the land
Fathomed, or could understand,
Until God's revealing hand
Lifted up its rugged covering,
Showed (tho' cold, and still, and dead!)
That great heart that nobly bled—
Died for us! Pure Soul, thy lightness
Was half lost; but all thy whiteness
Clung about thee to the last;
And was never dropped, nor passed.
There was naught to make thee linger
When God's lifted, dread forefinger
Stopped the wheels and signed to thee:
"Come up here, and rest with Me!"

—HOWARD GLYNDON



It is only by training all together—the physical, intellectual, and spiritual elements—that the complete man can be formed.

LETTERS TO A SON IN COLLEGE.

No. IV.

MY DEAR BOY:—In my last letter I considered the function of digestion. Among many practical observations in regard to eating, I gave you some directions as to when you should eat, how you should eat, and how much you should eat; but I said nothing in regard to *what* you should eat. This is a matter worthy of careful consideration; and in the present letter I will give some practical directions which will serve to guide you in the selection of your food.

That different articles of food are specially adapted to nourish different parts of the body, has long been a matter of observation. The ancient Roman athletæ not only had their training-schools established in those places, Capua and Ravenna, which were believed to contain the purest air of all Italy, but they were also sedulously careful in regard to their food. They were called Houdearii, or barley-eaters, because their diet was composed chiefly of barley, a food very rich in muscle-making material. In modern times men training for the ring are fed largely on lean meat, which is food almost entirely for the muscles alone, and probably contributes to their brutality as fighters.

In the rearing and training of animals, also, the experience of men has taught them that different kinds of food tend to produce very different physical conditions. Some are heating, others cooling in their nature. Some produce fat, others give strength and energy to the muscles; some give "wind," others sleekness of coat; some tend to docility, and others to ferociousness of disposition.

Availing ourselves of the knowledge of these properties of food, we may know how to feed our horses intelligibly to make them sleek, strong, active, and enduring; our cows, that they may give us the most milk; our ox, that he may be rendered tough and strong for labor; our hens, that they may lay us the most eggs. Even our pet birds and dogs must have their food adapted to their physical needs, or they pine and die.

Now, when we come to inquire what attention is given to diet by people in the ordinary walks of life, we find the utmost ignorance prevailing in regard to the adaptability of different articles in common use for food, to supply the needs of the system. The rearing of horses, cattle, sheep, and pigs is reduced almost to a science. We know the conditions of air, light, food, and exercise which is necessary to supply in order to preserve them in health, and develop them in the best manner. Natural death from any cause but old age is not taken into the account at all. And when this does occur, we are able to trace its cause to some infringement of the conditions upon which the health of the animal depends.

But the idea of applying scientific rules to the raising of children does not enter into the mind of one in a thousand of those who take upon them the grave responsibilities of parentage. Yet the human system is regulated by laws as definite and inexorable as those which govern the brute creation. They may be more intricate and difficult to be apprehended, as human nature is more complex than brute nature. Nevertheless they exist as truly, and are just as

definate in their operation as those which govern the horse, the cow, or the pig.

The mother, ignorant of the nature of her children, or the causes which preserve or impair their health, may wear herself completely out in nursing and watching over her sickly family. She feels profoundly grateful, and regards it as an evidence of the special favor of Heaven, if by days and nights of toil and anxiety she is able to bring them up to maturity. And if they die, she endeavors to bow in humble resignation to what she considers the inscrutable decrees of Providence. However we may admire the maternal love and fidelity which is ready to make any sacrifice in ministering to the wants of a sickly family; however we may commend the spirit of humble submission to the will of an overruling Providence, we must deplore the ignorance which fails to recognize in pain, disease, and premature death the natural and inevitable penalty for the violation of laws wisely framed for our welfare and happiness.

It was ignorance which induced the clergy of Rome to carry a black image of the Virgin through the city, with the expectation that this public manifestation of faith in her protecting power would avert the plague; while, at that very time, the miasma from her filthy streets and by-ways was breeding pestilence in the nostrils of her inhabitants. It was ignorance in the authorities of Edinburgh which allowed the plague to desolate their city, while the inhabitants of her prison, from the salubrity of its location, were wholly free from the pestilence. So it is ignorance which, in our own day, consigns to the grave one-half of our children before they have reached the age of five years, and compels many who live beyond this period to fill up their days in sickness and misery.

We look back upon our ancestors with pity for the misery which they endured by the plagues which depopulated their cities, when a knowledge of the conditions essential to health would have led them, as it now does us, to purge their cities of their pestilence-breeding filth. So, in the advance of knowledge, will future generations commiserate us for the miseries which we now endure from that dread scourge disease, because of our ignorance of the laws by which our health and happiness might be secured.

The Creator's works are perfect, and need only to be studied to make manifest His all-pervading beneficence. I hold it a libel on His wisdom and benevolence to suppose that He has created the "beasts that perish" with more perfect organizations, and placed them in circumstances better adapted for the enjoyment of existence than man, whom He has made in His own image, and whom He has endowed with superior intelligence, that he may have dominion over all other creatures, and convert to his own comfort and enjoyment the resources of a world which He has spent countless ages in preparing for his special habitation.

Let this be one of the guiding principles of your life. Write it in letters of gold where it will be a perpetual reminder of duty to yourself and your fellow-men, that no pain or disease comes upon us but as the result of violated law. We may not be able to trace out clearly in every instance the connection between the penalty and the law. Our sufferings may be entirely beyond our control, because the inheritance of our parents' transgression. But however far separated may be the penalty from the violation; however difficult it may be for us, with our limited knowledge, to clearly trace out their connection, yet the punishment follows the transgression by laws as immutable as that by which water seeks its level, or a body when unsupported falls to the ground. I am led to throw out these observations here because in the matter of food, ignorance is almost as universal as it is baleful in its consequences; and because it is in the power of every one to acquire a knowledge of the laws which govern his physical being which will contribute a hundred-fold to his own health and enjoyment, and descend in untold blessings to future generations.

Now, in regard to food, the science of chemistry has proved of incalculable benefit to the human race by giving us correct and definite knowledge, when otherwise we

would be groping about under the uncertain guidance of feeling and observation.

Observation, for instance, teaches the farmer that growing crops impoverish the soil, and that manure possesses the property of again enriching it. If he be a close observer, he may discover further that certain crops exhaust the soil of properties which certain kinds of fertilizers are specially adapted to supply. But why this is so, he does not know. The science of chemistry gives him the explanation.

It analyzes the various crops of wheat, rye, oats, corn, potatoes, etc., and separates them into their elements, giving the proportion of each with mathematical precision. It analyzes the soil in which they grow, and it finds in it the same elements as compose the plant. In growing, the plant takes of these elements what it needs to build up its structure. If the soil be rich, it may supply a number of crops with the nourishment essential to their growth. But each crop, taking from it a proportion of its elements, it finally becomes exhausted, and must have those elements in some way restored to it, or it is useless for the purpose of agriculture.

Chemistry again analyzes the fertilizers in common use, and it finds in them the same elements which it found in the plants and the soil. The soil possesses the property of absorbing these elements, and holding them in reserve as food for the plant. But in examining the tabular statements which chemistry furnishes of the elements which compose the various products of the farm, it finds that these exist in very different proportions in the different productions. Some are rich in carbon, but deficient in nitrogen. Others are well supplied with nitrogen, but wanting in phosphorus. While others again have relatively a much larger proportion of phosphorus than carbon or nitrogen. Analyses of the soils and fertilizers in common use show equally as great difference in the relative proportion of their constituents.

Chemistry thus furnishes the scientific farmer with a practical and reliable guide in adapting his crop to his soil, and his manure to his crop; while the unscientific farmer scatters his fertilizers with no intelligent idea of the needs of the soil, or the requirements of the crop.

This illustration is complete in its application to the relation existing between the articles in common use for food and the human body. By chemical analysis it is found that there are thirteen elements which enter into the composition of the human body, and that these same elements are found in the food which affords it sustenance. But the relative proportion in which they enter into the articles in common use for food varies greatly. So that it is very important in adapting our food to our physical wants, that we know what elements and what combination of elements compose our bodies as well as the various articles which afford them sustenance.

The thirteen elements which enter into the composition of the human body, may for convenience be combined into three classes, viz.: the carbonates, the nitrates, and the phosphates. The carbonates furnish the fuel, which is consumed in the lungs, and keeps up the animal heat. The nitrates are the special food of the muscles, and the phosphates of the brain and bones. The proportion in which these elements enter into the composition of the human body is about 70 of the carbonates to 14 of the nitrates, and 2 of the phosphates.

Chemical analysis also discloses the fact, that among the great variety of articles which we use for food, there are only two, wheat and milk, which contain all the elements of the human body, and in the proper proportion. Of other articles chemistry says, that butter, sugar, syrup, and fat of all kinds are wholly carbonaceous, or heat-producing, so that if a man were to attempt to live on these articles alone, his brain and muscles would starve. By actual experiment, it has been found that a man could not survive two months on such a diet.

The experience of men in the Arctic regions abundantly corroborates the deductions of science in regard to the heat-producing properties of fat. In that inclement country an ordinary meal of bread, potatoes, and meat is regarded with little appreciation; but whale oil is devoured with

great relish. The quantity of this kind of food necessary to keep up the animal heat in these cold regions is enormous. An Esquimau will consume a gallon of train oil, or ten pounds of tallow-candles at a single meal. The inhabitant of a tropical country, on the other hand, would be nauseated if set down to a dish of whale-blubber. He desires instead, fruits, which are cooling in their nature, and these being abundant in tropical climates, are wisely adapted to his physical needs.

From these facts, the observation is very naturally deduced that we should accommodate our food to the season. In winter a larger proportion of the carbonates is required, and in summer the cooling fruits and vegetables. But so little is this fact attended to that few people make any change in their dietary except in the fruits and vegetables common to each season of the year. In many farming communities, for instance, pork is a favorite article of diet for men laboring in the harvest-field. The unsuitableness of this article of food in the heat and severe labor of this season, and in any season, must be plainly apparent when we reflect that it is nearly all carbonaceous, or heat-producing, contains elements of impurity and disease, and very little material to supply the waste of the muscles.

I have said that wheat is a standard article of food. Its constituent parts are water 14 per cent., carbonates 70, nitrates 14, and phosphates 2. In a temperate climate, with moderate physical and mental exercise, it would keep the human machine in good running order indefinitely. But in a cold climate, or with severe mental or physical labor, we would need to eat with it articles in which there is a larger supply of the carbonates, phosphates, and nitrates, respectively.

In comparing the chemical analysis of wheat with that of other materials, we find that there are in northern corn, what is equivalent to 89 per cent. of fat or heat-producing material, to 12 of muscle-making, and 1 of material for brain and bones. From this analysis you will perceive the scientific reason why this article is in common use for fatting animals. In buckwheat there are of heaters 75.4 per cent., muscle-makers 8.6, and food for brain and bone 1.8.

From these analyses it will appear that neither Indian corn nor buckwheat is a suitable food for the athlete or the student; for it is important to bear in mind, in adapting our food to our physical needs, that the exercise of any part occasions a waste of its substance in proportion to the amount and severity of the exercise, and a proportionate demand for food rich in material to supply that waste. Thus the student requires phosphatic, or brain-making, food, the athlete or the laborer nitrogenous, or muscle-making, and the person exposed to severe cold carbonaceous, or heat-producing. You will perceive, also, the unsuitableness of buckwheat-cakes, butter and syrup, as articles of food except for persons exposed to severe cold, as the buckwheat has a large proportion of heaters, and the butter and syrup are wholly carbonaceous.

In barley there are of heaters 69.5 per cent., of muscle-feeders 15, and of food for brain and bone 4.2. In oats there are 66.4 per cent. of heaters, 17 of muscle-making material, and 3 of brain and bone material. Both of these articles, you will perceive, are excellent food for students, as the former contains more than double, and the latter one and a half times as much brain material as the standard article, wheat. They are also rich in nitrates, and hence are well adapted to supply the waste of muscular exercise. Having a very large proportion of woody fiber also, which is waste, and serves to keep the bowels open, they are specially adapted to persons of sedentary habits.

Beans and pease are very nutritious. The former contain 57.7, 24 and 3.5, and the latter 60, 23.4, and 2.5 per cent. of the carbonates, nitrates, and phosphates, respectively. But the muscle-feeders, which in the cereals are gluten and albumen, are in beans and pease casein, a substance much more difficult to digest than the former, hence these articles are better adapted to laboring men of vigorous powers of digestion than to students.

In regard to meats, I may say, in general, that they are abundant in nitrates and phos-

phates. The fat, of course, is all carbonates, and the lean largely nitrates and phosphates.

Fish are rich in the phosphates; salmon stands highest on the list, being rated at from six to seven per cent. Fruits and vegetables are all useful in their season. They contain but little nutriment, and hence are well adapted to be eaten with more concentrated nourishment to give the requisite waste and distension to the bowels. The fruits are especially useful for their acids, which aid the liver in eliminating from the system the impurities engendered by a too carbonaceous diet.

The flesh-eater has more need of a liberal proportion of acid-fruit in his food than he who subsists chiefly on cereals.

I class fine-flour bread among the carbonates, and do not advise its general use. As wheat is the standard article of food, it would be very natural for you to suppose that bread made out of wheat-flour would contain the right proportion of all bodily elements. This would be true of bread made out of the pure meal, but superfine flour is chiefly the starch of the grain—which is wholly carbonaceous—most of the nitrates and phosphates having been separated from it in bolting. Superfine flour makes whiter bread than the pure meal, and hence is in greater request among the majority of housewives not versed in dietetic principles.

In regard to pastry and sweetmeats, I would advise you to avoid them altogether. They are chiefly composed of fine flour, butter, and sugar, which are all carbonates. And whether it is from the combination of these materials, or the fat which they contain being changed into an indigestible oil, it is certain that they are not gratefully received by the stomach. Being usually eaten, also, at the close of the meal, when nine out of ten have already eaten enough to satisfy the wants of nature, this rich, concentrated food is wholly superfluous, and disorders the system in its efforts to get rid of it.

Use no tea, coffee, or condiments, except a very little salt. These articles are only stimulants and exhaustive of vitality. Accustom yourself to a uniform quantity of food at each meal, and always rise from the table before you have eaten so much as to experience a sense of fullness.

Finally, with these facts and principles in regard to food and the digestive system before you, you may yield obedience to the simple dictates of frugality and temperance with the certain assurance that they will lead into pleasant fields, where health and its consequent enjoyments will be your sure reward. In following out the instructions which I have given you, you will meet with ridicule from those who have not the self-denial, the independence, or the intelligence to rise above the customs of society, and the prejudices in which they have been educated. To such you may very appropriately say, in the language of Scripture: "Go thy way, eat, drink, and be merry; but know, for all these things God will call thee to judgment."

Nature may appear a very kind and indulgent mother to her presuming children, but they will find in the end, that she is such only to those who obey her commands; that she can not be cheated or deceived; and that she is inexorable in her requirements. Like a strict accountant, she charges every violation of her laws, however grave or trivial, and sooner or later strikes the balance. With some she is liberal, allowing their accounts to run a long time before she requires a settlement. With others she is exacting, demanding frequent payment. The former will be found to have large deposits in the bank of constitutional vigor. The latter, it will appear, have inherited but a limited patrimony. The former may be prodigal of their resources, and have them completely dissipated by the time they reach middle life, or they may use them economically, and have them last down to hoary age. The latter, like a man who has inherited an encumbered and exhausted farm, must bring to their poor inheritance knowledge, skill, and good management, or they will sink beneath the weight of their difficulties and embarrassments.

You are fortunate in having received a good inheritance. Use it wisely and Dame

Nature will have no occasion to strike a balance, till in a happy old age you may look back upon a long life filled with usefulness and true enjoyment, and contentedly await the final settlement Affectionately yours,

PATER CONFIDENS.

ON DISEASE OF THE LARYNX AND THE LARYNX MIRROR.

AS long as the larynx cavity was inaccessible to the eye of the physician, his knowledge of the diseases of this organ, which are frequently of the most dangerous character, was necessarily imperfect. The invention and application of the larynx mirror removed the chief barrier to correct diagnosis, and now one is enabled to inspect even the depth below the wonderful organ of sound and voice, to look down into the great windpipe or trachea which itself is often the seat of various diseases. This new and direct examination has greatly advanced the therapeutics or the method of treating throat disorders. The old internal treatment by medicines has become quite superseded by local application, the remedy being introduced with a brush or other instrument directly to the diseased part. In this way it is now possible to cure, successfully, ailments of the throat which were formerly deemed incurable because of inaccessibility.

A few points in regard to common diseases of the throat may be of service here.

I. Chronic catarrh or inflammation—chronic hoarseness, which is mostly accompanied by an irritating cough and the discharge of a tough, slimy expectoration of phlegm, and by difficulty in breathing. In a moderate stage the voice may be a little hoarse, but is always rough and without a pleasant sound; the patient suffers with superfluous phlegm in the throat, and finds it necessary to clear the throat after speaking. In violent cases the voice is continually hoarse, the obstruction with phlegm very severe, the sensations painful, and the disease at such times is difficult to cure. The trouble owes its origin almost in every case to an acute catarrh which has not been properly treated.

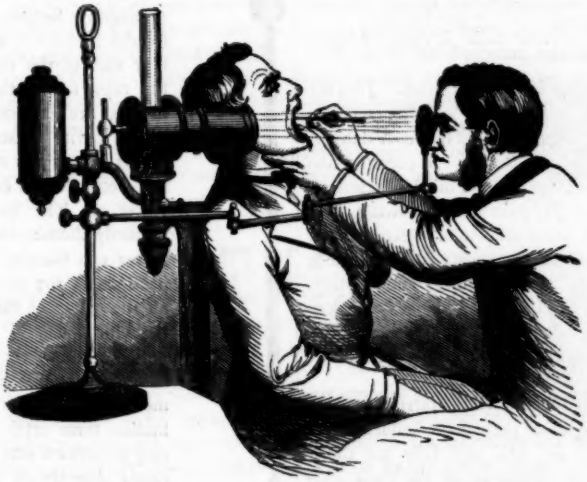


Fig. 1.—Operating with the Laryngoscope and Tobold's Lamp.

Everybody knows how often colds are caught in winter and spring, accompanied by hoarseness, cough, etc. Such a cold, which a little care would dispose of, is too

often neglected and continues on for weeks or months, that is to say, it becomes chronic, and a stubborn disease, which even in the most fortunate case, may cause a permanent injury to the vocal organs, through ulcers or swelling and paralysis of the voice ligaments. But the main danger lies in an extension of the inflammation of the larynx downward through the windpipe, until the lungs are reached and consumption threatened.

Fig. 2.—A View of the Larynx.

a. Epiglottis. *b.* Vocal cords. *c.* Cavity of larynx. *d.* Side wall of cavity.

II. Consumption of the larynx. This occurs usually in case of a simultaneous disease of the lungs, and it is the most dangerous disease of the throat. In consumption of the lungs there appears often hoarseness, irritating cough, pain in swallowing, etc., because the same process of destruction of the substance of the larynx is developed in it as occurs in pulmonary consumption. Fortunately this much-feared disease seldom appears on otherwise healthy persons, but almost always simultaneously with already existing disease of the lungs.

He who is affected with catarrh is warned to guard against pernicious influences of climate and air, and especially are those suffering with complaint of the chest cautioned to avoid all smoke, dust, and draughts if they would save themselves from disease of the larynx. The invalid is also cautioned against indulgence in alcoholic liquors.

III. Another class of diseases of the throat is made up of those which are nervous in their nature; they are usually pertinacious, but not dangerous sicknesses; they are also characterized by a roughness of voice, its occasional loss, and an inclination to cough; a feeling of pressure and dryness in the throat. In such cases there is less of the catarrhal trouble than of a relaxation of the vocal cords and ligaments. Such a feebleness or irritation of the voice is frequent with singers, ministers, and teachers, who strain the voice much.

The technique of the examination of the larynx is in the main as follows: The light of a large flame is thrown either direct by means of a large concave mirror, or, by having it concentrated through a system of lenses, and a small concave mirror (Tobold's lamp, fig. 1) into the wide-opened mouth of the patient, so that the throat (pharynx) is clearly illuminated by the pencil of light. The physician then holds a small, round, flat mirror (fig. 3), which is fastened to a long handle in such a way on the rear wall of the mouth, that the rays, falling through the mouth, are reflected in the larynx cavity as soon as the larynx valves are opened by the pronunciation of the long vowel *a*. The larynx being perfectly illuminated, the observer can discern, in the reflections of the small mirror, all the parts as far down as the windpipe.

Fig. 3.—The Larynx Mirror.

Fig 2 shows the larynx in a healthy state. Sunlight is more favorable for an examination than artificial, and it may be thrown into the throat either directly or through a flat mirror. In this way one succeeds without difficulty not only in distinguishing the state of disease, be it inflammation, swelling, ulcer, etc., but is assisted in applying his treatment. By the illumination of the larynx it is possible to introduce instruments in order to excise and remove small ulcers (polypi), or to take out any stray substance, as small bones, fish bones, etc., or finally to eat up by the aid of caustics, ulcers which may spring up in consequence of cer-

tain sexual affections. Furthermore, the use of the larynx mirror enables the physician to use electrical treatment, which may be applied in cases of paralysis of the vocal cords, which sometimes occurs after diphtheria or a great exertion of the voice, or by a nervous hoarseness.

Working-men suffer more than others from catarrhal disorders, because of their exposure to the causes of lung disease, but their experience of the more painful stages may be attributed to the carelessness with which they regard the trouble at the start; and further, in the aversion with which they look at scientific treatment. Not until the most favorable time for a cure has passed, and money has been expended in useless quackery, do these seek good medical assistance, and then it is generally too late. Inhalation of tannin or common salt has, in the beginning, proved very effective in relieving the throat irritation, and later experience has proved that in consequence of their antiseptic character, carbolic and salicylic acids when used at the beginning of the sickness through an inhaler are beneficial—though in an advanced state of the disease they are not remedial—because they stop the ulcerous and poisonous secretions of the mucous membrane and consequently overcome rationally the cough and phlegm. At all events, they are more effective than the customarily used physics, which only mitigate temporarily the coughing irritation.

Self-evidently this inhalation should take place under the direction of a physician and for a length of time, but only at the beginning of the sickness, and before any ulcerous destruction in the larynx or the lungs has taken effect. A principal fault in the diet of most patients is, that they try to overcome the deficiency of strength and the loss of the appetite through stimulants, sharp, pungent, and much salted food or spirituous liquors; this is all wrong and very injurious. Such stimulants increase the disorder of the stomach which accompanies the trouble, and the food gives little or no benefit to the body. Nourishing food is certainly necessary, but it must be easy of digestion. The preservation of the appetite is effected best through a proper diet. DR. KLEMM.

THE LIFE OF A MILLION.

THE Registrar-General has published a very interesting supplement to the thirty-fifth annual report, in which he estimates the march of an English generation through life. He starts with the assumed fact that 1,000,000 children are born, and of these he informs us that 511,745 would be boys, and 488,255 would be girls. This disproportion of the sexes is very speedily redressed, for the evils with which infants struggle in their cradles are more fatal to the boys than to the girls. The most fatal five years in the life of the generation is that when they are entirely dependent on careless nurses or ignorant mothers, for one in every four of the million, or 141,387 of the boys and 121,795 of the girls, will die before they are five years old. The million is thus reduced to 736,818. The next five years the deaths are few, and they are fewest of all in the third five years, that between the ages of ten and fifteen. This full growth of childhood seems to be the healthiest period in the whole life of a generation, but somewhat more so for boys than for girls. Then follow five years of somewhat more liability to disease and death. This liability is still further increased in the next five years by consumption and other ailments incident to the period when growth has ceased. But in this whole march of twenty years through childhood and youth, our million, which was decimated twice over in the five years of babyhood, loses but 102,773 of its number, and an army of young men and women in almost equal proportions, and 634,045 in total strength, marches over the dividing line of the first quarter of a century. During the next ten years less than one in ten of the whole will die, and there will still be 568,993 living at thirty-five years of age, when two-thirds of the women will be married. The next ten years will be more fatal than the last, and of those who saw thirty-five 66,078

will fail to reach forty-five, and of the million who started, only 2,915 over half a million will attain that period of life. From that point the rise of the death-rate at each decade is terrible; 62,052 died between twenty-five and thirty-five; the number increased to 66,078 between thirty-five and forty-five; but between forty-five and fifty-five the number of deaths rises to 81,800; and from fifty-five to sixty-five 112,086 will have fallen. The number who set out over the next reach of ten years is 309,029. But the march for the next ten years is a Balaklava charge into the jaws of death, for nearly one-half of them (in actual numbers 149,905) will be left behind in the grave before those ten years are over, and only 161,124 reach their seventy-fifth year. This remnant rapidly diminishes, and at eighty-five only 38,565 remain. Another ten years and there are on the field only 2,153 people of venerable age, of whom nearly nine out of ten will pass away without reaching the centenarian's fame. The number which will probably cross the threshold of a second century is 223, but none of these reach 110; for the last of the million will probably come to his grave in his 108th year.—*London Paper.*

FEVER: ITS NATURE AND TREATMENT.

MEDICAL writers and teachers, from earliest historic times, have regarded fever as the great enemy to human life. Prof. Gregory, one of the most celebrated authors of modern days, says that eight-ninths of the human family die of fever, in one form or another, and nearly all others assent to his assertion.

How many strong, healthy men and women are stricken down and burn and burn, and die with typhoid fever, or recover to be mere wrecks of their former selves. We meet persons, every day, not more than half alive, who date their weakness, inefficiency, and often suffering, back to the time when they had "the fever," and we all remember friends who fell victims to this terror of our race. Scarlet and diphtheritic fevers destroy thousands of our bright-eyed, rosy boys and girls every year, or leave them deaf, blind, or crippled for life. Variola fever is so much dreaded, that tens of thousands of our otherwise healthy children have their blood filled with poisonous humors communicated with vaccine virus, which is supposed to be a preventive. How many die, yearly, of bilious and lung fevers, and what terrible havoc is made by that slow fever, consumption. A fearful proportion of the children born in this country die, under two years of age, of that scourge of young vitality, cholera infantum, enteric fever; and nearly every death in our broad land, except those sudden deaths occasioned by accidents, can be traced to fever or inflammation. As to what fever is, medical authors have never been agreed, except in one particular. They have nearly all regarded it as an enemy to life. Dr. Z. Collins McElroy, however, in a paper read before the Muskingum County Medical Society, at its session in the city of Zanesville, Ohio, October 12th, 1876, says: "Medical text-books and oral instruction in early life taught me that the fever process was the work of an enemy; and that opinion was held a good many—far too many—years. Arriving at a conclusion exactly the reverse of my educational training, was a very slow process. It was not one great fact, but a great many facts that now compel me to look at the fever process as the work of a *friend to life*, and always in the *interest* of life; and this conclusion, with a full knowledge that a large number of human beings die during the progress of a fever." Such is the honest testimony of this distinguished medical man, who said that "while he regarded the fever process as the work of an enemy to life, he had *treated it too much*," and that he would confess, "since he had come to understand the nature and purpose of fever, he *no longer pickled his patients in whiskey;*" and that "in studying the progress of a fever process in any patient, he felt he had a higher duty to perform than in trying *to cure them with drugs and medicines.* He does not mention, however, the course which

duty points out to him, except in this negative way. But although this physician and some others have come to regard the fever process as a friend to life, and therefore discard all drugs that have a tendency to reduce the fever; the great mass of the medical profession to-day, of all schools of practice, regard fever as an enemy, and treat it as such. Notwithstanding the fact that a large majority of physicians practically adhere to the idea that fever is an enemy to life, yet the ranks are badly broken by doubt and indecision, for it is an unquestionable fact that by far the greater part of those who get sick with fever recover, although the "smell of fire" may ever afterward remain upon them. What, then, *is* fever? We shall clearly see, after considering a few physiological facts; facts that lie at the foundation of all life and motion in the higher organized beings. The first condition of life in the human family, that which commences with the primitive cell formation, and continues until the last beat of the heart, is heat at 98°. This heat is called vital, because produced and maintained by the *life force* in the organism. Every substance in nature possesses certain inherent properties that are imical or inimical to the vital force. Those which are agreeable, excite it in such a manner that the heart is caused to beat regularly and with sufficient force, and the lungs are made to respire with such frequency as will properly aerate the blood. These substances are called hygienic, or health-producing. They are water, air, and food, of good quality and sufficient quantity, with everything else that may be summed up as favorable to our organic life. If the life principle were influenced only by hygienic means, the vital heat would always be normal, and every depurating organ would perform its function to perfection. But when the vital principle is excited by anything that is not congenial to it, there is a powerful resistance set up at once, and it is expelled from the system if the vital force is able to accomplish it. Vital resistance to whatever is inimical often increases the action of the heart and lungs to double that which is normal, and the heat is raised far above the normal standard. Let us dwell on this fact for a moment, as it contains the key to the whole subject of fever. Something inimical to our organic life, the scarlatina germ, for instance, is taken into the blood through the lungs. This germ, though almost inconceivably small, being inimical to life, is large enough to cause vital resistance. That resistance is manifested by exalted action of the heart and lungs. That increased action of the heart augments the friction caused by the passage of the blood through the vascular system, and consequently raises the vital heat, which is added to by the more rapid aeration of the blood in the lungs, another heat-producing process. Now in the exanthematic poisons, such as scarlatina, small-pox, measles, etc., there is a certain incubating or hatching-out period required, and this is the way it occurs. The infusorial germs are inimical to life. They are taken into the blood through the lungs. The life force increases the action of the heart and lungs in order to drive them out of the system through the depurating organs. That exalted action of the heart and lungs increases the heat, and that excess of heat is just the condition required to develop these germs into living, active, voracious organisms, that, in the language of Prof. Tyndall, "finding lodgment in the body, increase there and multiply, ruining the tissue upon which they subsist, or destroying life indirectly by the generation of poisonous compounds within the body." Fever, then, is vital resistance to anything inimical to life, and the consequent excess of heat; and the causes of fever may be as numerous as are the substances or forces that are inimical to life. The most indubitable proof is now spread broadcast over the world, that elevated temperature, excessive heat, is the direct cause of the development of these infusorial germs into organic structures. Remove the heat, then, as fast as it is produced by the exalted vital action, and the germs and infant organisms are cast out before they have time to prey upon the fluids and tissues of the body. For twenty-five years I have had the satisfaction of treating scarlet fever, diphtheria, and measles, on the principle of keeping the vital heat at

the normal standard, and have never seen the slightest desquamation, or peeling off of the cuticle, nor any secondary evil results where this first indication of nature was followed. Heat itself, above the normal standard, is inimical to life. There may not be a particle of malarious or infectious poison in the blood, and yet if its heat is raised to 110 or 112° for a few minutes, death is the result. Heat and cold, forces in nature which, when properly blended, constitute the temperature necessary to vitality in the hot-blooded animals and man, when applied in great excess, cause instant death; when the excess is moderate, the vital force is slowly exhausted in its efforts to protect the organism from damage. What can be more clearly self-evident, then, than the proposition that health and disease are simply antithetic terms, relating to vital action; health being that action, or manner of motion in the organism, which is occasioned by such excitement of the vital principle as proceeds from those substances, forces, and conditions that are agreeable to it, and disease being that excitement or stimulation which is occasioned by anything inimical to life. The causes of disease or vital disturbance are even, in number, with whatever is inimical to life. The first sensible thing to do when we find vital disturbance or disease, is to discover the cause and remove it, if practicable; the next is to attend to hygienic conditions.

Now, aside from the fact just stated, that the *first* condition of life, and of course of hygiene or health, is heat at 98°, produced and maintained by normal vital action, we have the testimony of medical men of all times that *excessive heat* is in some way connected with all the phenomena of disease. Therefore, the *first* hygienic condition to look after is the regulation of the vital heat. The whole medical world is just now becoming alive to the fact that this regulation of temperature should be done with water. One of Europe's most honored and successful practitioners, Dr. Louis Gignoux, of Lyons, France, in speaking of the treatment of typhoid fever patients says: "The baths are all-sufficient, medicine useless." It being settled that in all fevers, or those vital disturbances where the heat is excessive, the excess of heat should be removed with water at some temperature lower than that of the blood, the question arises, how shall that be done so as best to secure a normal temperature throughout the organism? To answer this question fully, would include the whole subject of Hydro-therapy. But a few general principles can be mentioned here, and directions given, that may serve as a foundation for rational practice. First, in all cases of vital disturbance which result in excessive heat, the inimical thing directly stimulates the nervous centers, and the excess of heat should be removed by means which do not stimulate the nervous extremities. Very cold water will rapidly reduce the excessive heat, but it is, of itself, a powerful stimulant when applied to the skin, which contains the nervous periphery. A knowledge of this fact enabled me, in 1849, at Nashville, Tennessee, to save several cases of cholera that were cold to the sense and pulseless at the wrist, by pouring a large amount of very cold water over the trunk, and immediately thereafter wrapping the patient up in hot wet blankets. This toned the nervous system, and invited the blood to the surface, thus relieving the internal organs of their pressure. The same thing in effect was done by Dr. W. K. Bowling, of Nashville, Tennessee, in 1873, during the cholera epidemic of that year. He rubbed the skin of his cholera patients with ice and immediately wrapped them up warmly, when reaction followed and they were saved. But in those cases where the heat of the system is excessive, that heat should be removed by water at a temperature that will be as soothing as possible to the already over-excited nervous system. I practically learned this at the bedside of a typhoid patient about twenty-five years ago, where I had the unconscious and apparently dying man taken from his hot feather bed, upon which he had lain for three weeks, and placed on a fresh straw bed, where I constantly dripped tepid water upon him through a folded sheet wrapped around the trunk. Quieting? In one hour's time he had commenced to have fifteen or twenty minute intervals of refreshing sleep, whereas he had

been in a waking delirium for three days previous. Under this treatment the morbid symptoms all gradually disappeared, and within six days he was completely convalescent, and clothed in his right mind. Since then I have reduced high fevers by using water whose temperature was as nearly up to that of the blood as was practicable. But it requires a great amount of water at 90 or 95° to keep down the heat of a patient in typhoid or other fevers where it runs up often to 106°. I had great trouble about this matter, which usually resulted in the use of water at a much lower temperature generally unpleasant to the patient when first applied; but the whole difficulty was obviated in the use of the fever bed or bathing cot, a description of which, with the cut, was published in the last number of the JOURNAL. Upon that cot, water of any de sired temperature can be used, and during any length of time; for the cot is so constructed, and of such materials, that it makes an excellent bed. G. W. KIBBEE, M.D.

THE BRAINS OF CRIMINALS.

UNDER the above heading there is going the rounds of the press a short article accredited to the *London Medical Examiner*. It relates to the researches of a Dr. Benedict, of Vienna (I infer) on the brains and skulls of criminals. Dr. B., it states, has discovered that the brains and skulls of criminals actually differ in shape from those of the better class of people! and he has been able to classify the principal forms of deviation from the normal type as follows: "(1) absence of symmetry between the two halves of the brain; (2) an excessive obliquity of the anterior part of the brain or skull—in fact, a continuation upward of what we term a sloping forehead; (3) a distinct lessening of the posterior part of the skull in its long diameter, and with a diminution in size of the posterior cerebral lobes, so that, as in the lower animals, they are not large enough to hide the cerebellum."

The first mentioned peculiarity is not very important. More or less "absence of symmetry" between the two hemispheres is frequently observed in individuals having no marked trait of character referable to this peculiarity of brain. It may result from injuries, insufficient nutrition, or lying habitually on one side in sleep. If the difference be great, then it may be associated with mental disorder of a serious nature. The second form of deviation is a very important one, and is almost invariably present in criminals of the lower class. With reference to the last mentioned form of deviation, I would say it is most common in criminals of a certain class, and the head may appear thus formed because of an actual deficiency in the higher social organs, or on account of excessive development of the posterior and cerebellar region.

But these facts are just what Dr. Gall and other scientific phrenologists taught in their writings and lectures nearly three-quarters of a century ago; and yet the doctors of to-day are publishing the observations of Dr. B. as late discoveries in physiological science! It is noticeable that some of the "regulars" seldom mention the word Phrenology, except in derision, in their accounts of observations or discoveries in reference to the brain; perhaps because they recollect their rank opposition to the science at its inception, and do not now wish to admit that they were in error, but prefer to *discover* its facts and principles over again, thus hoping to secure to themselves the honor due to another. But in this they will certainly fail. A fact, however, which phrenologists are glad to know is, that almost all the observations, experiments, and discoveries thus far made by investigators in all parts of the world are, according to the reports, in great part confirmatory of phrenological principles as taught by its scientific advocates.

F. E. ASPINWALL, M.D.

GROUNDWORK OF HEALTH.

No. II.

CAPITAL only in money is dead labor. It is different from any other form of capital, and the least pardonable form of the oppressive myth and fiction by which labor is hoodwinked. The laborer is now kept in a chronic fright lest this defunct product of his own loins should rise up against him. How ridiculous! Who will say the days of feudalism are past? The tyranny of old is rampant to-day in a transparent mask; and our liberties are filched by piecemeal through insidious, cultivated tastes; by which the few manage to thimble-rig the many out of their birthright for less than a "mess of pottage." Fashion, habit, custom, the so-called social order, form a web, a net, that covers humanity like a pall; and that terrible misnomer called civilization is a more degrading form of slavery than any on record.

Those faithful delvers after truth, that through poetic license are wont to divulge occasionally (and their testimony is unanimous), making a most damning verdict, speak so beautifully true in "Isles of the Amazons":

> "I know upon this earth a spot
> Where clinking coins, that clink as chains
> Upon the souls of men, are not;
> Nor man is measured for his gains
> Of gold, that steam with crimson stains
> Upon the souls of men."

It has been said that slavery was a necessity of this age; let us qualify this proposition. In doing which we have recourse to the new dictionary, not yet in print, but in preparation, wherein things are called by the name which actual practice gives color to. In this new and useful addition to lexicography, instead of occupying two inches space to explain the derivation, root, etc., as in "Webster's Unabridged," the word "financier" is defined by a single word, and that word is "thief." So with the word "civilization," in the same new work, it is defined by one word, "slavery." Thus it will be seen that we were not far wrong in stating slavery to be a necessity. If modern civilization be indispensable, slavery is unavoidable. Therefore the philosophers shaped their experiments accordingly. It is to be hoped that we are approaching an age where such philosophers as Sophocles will not be required, when none of those conditions will be present rendering it expedient to make black appear to be white, or the truth a lie.

Given all the constituents of the fluids and solids of the human form, embodied, it yet requires the vital spark; or else it is no better than a lump of clay. Thus it is with capital. We may have all the gold, silver, iron, steel, machinery, material of all descriptions, and without the leaven of human labor they are worthless! What follows? Human labor is the one ingredient in the alembic of society that transmutes all the baser to gold; labor is therefore of priceless, yea, inestimable value. Yet mortals essay to purchase it. Not only endeavor to buy, but to cheapen, cheapen, cheapen, until this priceless jewel is bartered for husks. Is it, then, a wonder that the saying is common that all have their price—all virtue, all honor, all manliness, all womanhood, all godliness, is for sale? Nature is not thus! It follows that man, by abnormal surroundings, has been forced out of his natural orbit, and is trammeled in grooves of art to his undoing, leaving barely the semblance of his true nobility. Having found the groundwork of health, let us build thereon, and perchance the All-seeing Eye in scanning the superstructure may recognize the handiwork of His children.

It is only because those are found who are superstitious enough to accept the dead and useless token of labor for its reality, that the tyranny of the feudal age still finds hold for its tiger-fangs. So long as we tinker at the symptoms of the disorder and leave the cause, the root, untouched, it continues to send out new shoots. Health of body and mind demand proper food. Tigers feed upon the warm blood and flesh of their prey; if we desire to conquer the tiger within us, we

must cease to pander to carnivorous tastes and appetites. Monopolists are only the natural outgrowth of improper diet. So with murderers, thieves, lunatics, and madmen. In fact, the majority of the ills that afflict mankind can be traced to deviations from the normal status of the leading anthropoids. So long as superfluous tastes and habits are indulged, just so long will slavery be a necessity. The normal simplicity of the best Grecian period is the nearest exponent of our theme. The period of Hyperdes, and Phrynee, who, although the perfection of the graces in person and mind, was condemned to death by the Areopagi, for ridiculing the Eleusinian mysteries. Her lover accompanied her before the judges, and failing in his eloquent pleadings to move them to clemency, as a last resort drew from the shoulders of his beloved the mantle that draped her form—leaving her exposed in their presence—exclaiming, "Destroy, if you can, the masterpiece of Nature!" Who shall say the halcyon days of yore may not return, and the children of men wander again in the gardens of the gods? F. M. S.

THE SWEET POTATO.—Concluded.

BEETS, CARROTS, AND RADISHES.

BY JULIA COLMAN.

The Sweet Potato, Varieties, Cooking—Other Tubers—Beets, Value, Culture, Cooking—Carrots—Radishes.

RECIPES.—Beets, Boiled, Pickled, Hash, Greens, Baked—Boiled Carrots—Carrot Stew.

VARIETIES.

IN our markets the Yellow Nansemond usually takes the palm. It is of a bright, clear yellow, large in the middle, and tapering to a point at each end; flesh, yellow, sweet and dry. It does not require so long a season as many other varieties, and has produced well in Maine and Canada. The Red Nansemond is said to be the best red sweet potato for Northern culture. But the American Red is more prolific and more certain, though not quite so good in quality, and might succeed in localities where the other would fail.

The white varieties are not so sweet or so desirable in other respects as the yellow or the red. The Yellow Carolina is a very sweet, sugary potato, and for many years commanded the highest price. New varieties are procured from the seeds. These are black and triangular, somewhat like those of the Morning Glory, but they are rarely produced in the open air at the North.

This valuable esculent, which has never yet been greatly troubled with blasting, mildew, or pests, would, we believe, abundantly repay experiment, analysis, and much closer observation than has yet been given to it. We hope some of our Southern or California Yankees will turn their attention in this direction, and see what they can do to improve it.

COOKING.

Baking is the favorite method of cooking the sweet potato, and for the sugary, waxy, kind it is certainly the best. Accordingly, baking and roasting prevail at the South, where they are often eaten cold, and it must be confessed that they are far preferable to a cold, cooked Irish potato. In Mexico they are served like sweetmeats. A very dry sweet potato is, to many tastes, better boiled or steamed than baked, and it is more economical. Another excellent method is to boil or steam them, for ten or fifteen minutes, and then finish them in the oven.

Whether boiled or baked, they are always cooked in their skins. It is not only a difficult matter to pare a raw sweet potato, but it is difficult to cook them when pared and have them look fair afterward. Any contact with iron, stains them. Probing with a steel fork leaves ugly-looking black streaks. It is best, therefore, to try them with a silver or plated fork, or in baking, to feel them through a napkin with the fingers. When boiled, they are peeled before serving. A silver or plated knife should be used. It is more desirable to peel them before serving than Irish potatoes, because they are more liable to soil the fingers. This does not apply to the baked potatoes, which are

usually eaten with their skins, if properly baked.

The disposal of the skins is a troublesome point, unless we import that neat custom of our island neighbors and place little plates beside each cover to receive the peelings. As it is now, we litter the table-cloth with them, replacing them on our plate when we have done with it, or keep them on one side of it all the while we are using it. Although this is a better custom than that prevailing in the times of Queen Elizabeth, which tossed all the fragments on the floor, yet it will soon, we hope, be superseded by placing a dish by each plate to contain all the débris of our food. I should prefer a deep-colored glass dish, smaller than the finger-bowl, but shaped like it and harmonizing with it in color.

There is a curious difference between white and sweet potatoes in the time required to cook them respectively. Sweet potatoes of about the medium size, cook in about the same length of time required for the white potatoes, but the small ones require less time, and the large ones require more. So it happens, that in cooking Irish potatoes, if you put the larger ones at the bottom of the kettle or on the hottest side of the oven, all will be done at about the same time; but with sweet potatoes, the smallest ones will require to be dished first. Hence, the recipes usually say, "Choose them of uniform size;" and it is better to cook the small ones together, and the large ones also by themselves, than to mingle the sizes.

Since there are many people who do not care for sweet potatoes or who often prefer the Irish, especially with meats, it is customary to cook both kinds at once, if there are to be strangers or visitors at the table. For the private family, the cook knows their tastes and will, of course, be guided accordingly.

In two respects sweet potatoes have the advantage of white potatoes; they are seldom or never mashed, and perhaps partly in consequence of this they are more frequently eaten without salt, pepper, melted butter, and other hurtful condiments. So far as we are able to judge, it would be greatly to our advantage, dietetically, if we could, in a still greater degree, make the sweet potato take the place of the Irish potato in the northern part of these United States.

OTHER TUBERS.

In view of the repeated failure of our staple potato from various causes, it would seem the part of prudence to be on the lookout for something else to take its place. It would be even better if we could have several other things to use in a similar manner, and which we could consider, in some degree, as substitutes, since if one failed we might have others upon which to lean. This seems to be the economy of Providence, and perhaps we can not do better than to follow that lead.

The Chinese Yam was introduced some time since as a valuable esculent, but if it had been ever so desirable for the table, it did not stand any chance of favor with the potato diggers; for it went so far and was gone so long as to lead to a suspicion that it had started for a visit to its old neighbors. Two or three feet in length, with a very direct downward tendency, and the largest end at the bottom, suggested something too much akin to sapping and mining to suit ordinary farming operations.

The Ysano, from Peru, has also recently claimed our attention. It produces an abundance of red and yellow tubers, small, but pretty. But "when cooked like potatoes they are not eatable." Very well we learned when the potato was introduced, that all things were not to be cooked alike. We think it does credit to the inventive genius of somebody that a way has been found of making the Ysano eatable, by cooking and then freezing. It is now sold in the streets of La Paz by dealers, who wrap it well in woolen and place it in straw to keep it frozen. It is sopped in treacle and then eaten, in hot weather, as a refreshing delicacy. It would not take the place of potatoes to eat with hot meat. We think it would be easier to dispense with the hot meat. Perhaps in the good time coming, that is the manner in which we shall solve this vexed potato question.

We hope, however, that several other things will yet be found in some unexplored, or partly explored, region which will give us

the desired variety. It is said the Siberians cultivate a lily, the root of which they roast and eat as we do the potato. In tropical regions the Yucca Utillissima is utilized in a similar way. If it be as hardy as the Yucca Filimentosa, which endures the winters in this latitude, it is more so than the potato. But we need not go so far away as either of those. The "tuberous-rooted chervil" can be had at the seed-stores—a root nearly the size and form of an Early Horn carrot. The flesh is white, farinaceous, and of a flavor intermediate between that of a chestnut and a potato. In our own waste places we have the Chickling Vetch, Lathyrus Tuberosus, with tubers which weigh from one to three ounces. These are very farinaceous, and when cooked are highly esteemed, resembling roasted chestnuts in taste. Has any one tried the culture of these? Our potato, when wild, could scarcely have been larger than that. It has a running vine, a small, bean-like leaf, a cluster of fragrant, purple, labiate flowers, a pod an inch long, and can be readily verified by the botanical description. I have often found it when out botanizing and mused over the possibilities of its tuberous root. If I had it now, I should plant it and cook the product. Who will look this up for us and try it?

BEETS.

We are again on classic ground, introduced, strange as it may appear, by the unromantic beet-root. The Greeks and Romans were fond of beets; the former especially of those which came from Boeotia. We can hardly refrain from the suggestion that hence came the name also. It must have had some very ancient origin, for all the modern tongues follow the ancient Greek *Beta*. We are well aware of the venturesome nature of such philological conjectures, and so we will not insist upon it, though it seems far less fanciful than the derivation given by Columella, namely, that of the resemblance of the root to the Greek letter B.

The Greeks had two sorts, the dark and the pale. They gave preference to the latter; and the physician Dephilus placed it far above the much esteemed cabbage. He recommended it to be eaten boiled, with mustard, and considers this food as a very excellent vermifuge. Martial called it an insipid dish; but with Apicius, a much higher authority, it was a favorite. Here is one of the recipes of the latter: "Boil over a slow fire some very tender white beet, add leeks; when cooked, put into a saucepan with pepper, gravy, and raisin wine; take care that the ebullition be regular, and serve." You perceive the delightful uncertainty about the dressing, etc. We suppose, however, that the beets must have been peeled between the cookings, especially if, as in the following case, they were tied together before they were washed: "or, if you prefer, tie in a bundle the beets you have carefully chosen, wash, throw in some nitre, and boil in water; then put into a saucepan with sun-raisin wine, pepper, cummin, and a little oil; at the moment of ebullition add a little gravy and coarsely-chopped walnuts; cover the saucepan for an instant, uncover and serve." In another case, he makes a pulp of leeks, in which he heats the root after it was boiled, adding corian der, cummin seed, flour, wine, gravy, oil, and vinegar. It hardly requires a trial to show that our tastes must be quite unlike to those of these ancient fussers.

Indeed, we by no means consider it to be a matter of prime importance to us what they ate or how they cooked it; but when we read such recipes as the above (and these are much more sensible than many that might be quoted), we are tempted to congratulate ourselves on the advance of the race in the important art of cookery. It is, of course, much easier to do this when we can be sure of our acquaintance with the materials, and we have no reason to suppose that there has been any great change in the beet. Again, it is pleasant to know that while these people searched the world over, as they thought, for all sorts of delicacies for the table, and this of itself had no small share in the political history of the world, yet there have been reserved for later times valuable discoveries of varieties in various new countries, besides great improvements in culture. The beet was found wild in Egypt and along both shores of the Medi-

terranean. It is not a tropical plant, although it will not endure any considerable degree of frost.

VALUE.

Beets assist in making a variety; they are palatable and pretty; they have more nutrition than most of the other roots, though not so much as the tubers. If properly cooked, they are not indigestible by the active stomach of a healthy person. We think that usually the trimmings with which they are eaten—the vinegar, oil, and melted butter—are much more hurtful than the beets. Dr. Beaumont states that it requires three hours and forty-five minutes to digest; while carrots require but three and fifteen minutes, and turnips two thirty-two. We should not recommend beets for invalids, and if we were acquainted with any variety which might properly be called "a good vermifuge," we should not recommend that for food at all.

They contain large proportions of mucilage, starch, sugar, and alkaline salts. The white sugar beet is much used in the manufacture of sugar in Europe. This manufacture is much more difficult than the manufacture of cane sugar; but continued effort has overcome all difficulties, and now, when fully refined, it can hardly be distinguished from cane sugar, with which it competes in various markets on about equal terms.

CULTURE.

Beets are very exacting about the soil in which they grow. If it be not a deep, light, well-worked sandy loam, you might almost as well not try to raise beets. If thin and gravelly, the roots are apt to be tough and fibrous; if cold, wet, and clayey, they are watery and coarse; if stony, the roots of the long varieties are apt to grow crooked and forked. Coarse, strawy manure will produce a similar result. Salt, loam, guano, and bone-dust are good fertilizers, and a surface-dressing of ashes aids in developing the young plants.

For early use, sow the seeds as soon as the ground can be worked. For autumn use, sow about the middle of May; for winter use, early in June. They should grow rapidly, in order to be tender and crisp. Sow in drills, and thin to one in a place. As they grow, pull the largest and leave the others to fill the vacancy, which should be for the ordinary garden sorts five or six inches.

The smaller sorts are more likely to be tender and sweet, though many of the field sorts are good for table use if taken young. Every good seed catalogue gives descriptions by which you can judge of what you want. The later sorts must be harvested before severe frost, or they will be likely to decay at the crown. Cut the leaves at the distance of an inch from the root; carefully avoid breaking the skin of the root. Pack away in moderately moist earth or sand, and keep cool, without freezing, until spring. This prevents drying and wilting—the prevailing fault in winter-kept beets, by which they are frequently spoiled.

The Mangle Wurtzel is a larger variety of beet, used almost entirely for feed. The roots are shaded in rings of red and white. Swiss Chard is also a variety of beet, the leaves of which are much used for greens, and the leaf stalks are often dressed like asparagus, making an excellent dish.

Boiling is the standard method of cooking beets. The large roots require much more time than the small ones. The only rule is to time them, and you will soon learn about what allowance to make for the size. Baking is a favorite method with some; but it requires large fresh roots, and it is much more trouble as well as more wasteful both to cook and to dress them in that way. Young beets with their tops make excellent greens in their season; and if the weather be warm and moist, so as to induce rapid growth, the leaves will be good when the beets attain a size suitable for cooking by themselves. People often throw these away and cook greens that are not nearly so good.

CARROTS.

The Greeks and Romans had these both wild and cultivated. They grow very readily and are often found running wild from many an old garden plot, but they soon lose their delicacy. They are more hardy than beets, but the sorts usually grown require to be housed before hard frost. The cul-

ture required is in most respects the same as that of the beet. They are perhaps nearly as nutritious as beets, certainly more easily cooked; but the flavor is more peculiar and pronounced, and to most people not so agreeable. On many tables they never make their appearance, excepting in soup, for which they are much used. Some new and more delicate kinds have lately been introduced, such as the Early Frame and Early Horn. These can be used as salads, either cut up with other ingredients or by themselves, like radishes, to which they are far preferable. The largest use for the root, however, is for stock, giving sleekness to horses, and richness and color to milk. The leaves are coming into use in trimming and making bouquets, for which they are well adapted, especially late in the season, when other leaves fail.

RADISHES.

We mention these simply to put in our protest against them as food; and if we could have our way, to turn them out of the dining-room, and the garden as well. We really do not know a thing they are good for, only to look bright and fresh on the stand of the huckster, when there is very little else that looks bright. As for looking pretty on the table, flowers far surpass them. They are crude, hard, difficult of digestion, innutritious, acrid, and, to a delicate, healthy, and rightly cultivated taste, simply abominable. Any one who needs such a relish to make his food go down, would better wait till he can get that finer relish, hunger, and it will do him far more good. We can not even say in this case, leave them to the lower animals, for we know of no animals that eat them with apparent relish.

RECIPES.

BOILED BEETS.—Use a scrubbing brush to clean them with, and an abundance of water; cleanse them well without removing the short bits of leaf stems and the smaller roots; put them into a large proportion of boiling water and boil one hour for small young roots and three or even more for very large roots; lift with a spoon and press with the fingers to see when they are done, but do not probe them with a fork. A little overdoing will not hurt them, but they must be well done in order to be acceptable in any sense. Put them into cold water, and as soon as they can be handled the skins will slip off readily. Cut into quarters or into slices and serve warm or cold.

BEET PICKLES.—Stew rhubarb with much juice and very little sweetening; place it in layers between the sliced beets and let it stand a day or two. If wanted sooner, heat it through and let it cool, or use lemon juice and pulp, mixed with an equal quantity of water, and slightly sweetened. The best pickle is stewed green grapes or verjuice. As a dressing for beets, or to eat with them, use stewed tart apples.

BEET HASH.—Chop cold boiled beets and put them to warm in a frying-pan, with milk enough to cover them. Then chop twice as many potatoes, place them over the beets, cover close, and let them heat through, then mix intimately and serve warm.

BEET GREENS.—Pull the young beets as long as the tops are tender, or use only those removed in thinning out. Wash well and pick out all the imperfect leaves; boil in plenty of water, roots and all, for three-quarters of an hour or more; then drain on a colander placed over the pot in order to keep them hot. Serve warm with sweetened rhubarb juice or apple juice, or without dressing.

BAKED BEETS.—The roots must be clean, large, and very fresh, or unwilted. The oven should be slow. Some place them inside of a jar or a closely-covered tin pan or an old saucepan. Cook from three to five hours. When tender to the fingers, pare, slice, and serve warm or cold.

BOILED CARROTS.—Wash, cut in slices across, and peel around; throw into water enough to cover them; cover close and stew fifty or sixty minutes, doing the juice well down; they can be served in this juice, or it may be thickened with oatmeal milk and then poured over them. A squeeze or two of lemon juice improves it for some tastes.

CARROT STEW.—Dress as above; and when half done, add twice or three times the quantity of pared potatoes; boil till the latter are done, having them half full or more of water, which thicken with Graham flour to the taste. Some would consider it an improvement to have a few rings of onion thrown in with the potatoes.

APPLE BREAKFAST-CAKE.—Prepare and stew fresh apples precisely as for the table, and then pass through a colander. Add to this about two parts "A" oatmeal, making it so thick that it will retain the shape given it by the spoon. Spread out half an inch thick, or less, on a baking-tin, and bake twenty or thirty minutes in a good oven. Serve warm.

RECORD OF SCIENTIFIC DISCOVERY.

Another Great Canal.—The reader has probably heard of the great engineering enterprise now in progress in Holland, the construction of a canal for the direct communication of Amsterdam with the North Sea. The idea of joining Amsterdam with the sea by a direct communication had long been entertained and investigated by various committees, and though many were incredulous of its ever being possible to carry out such a work, a concession was given in 1861. In 1863 a company was formed, and in 1865 the well-known firm of contractors, Messrs. Henry Lee & Sons, of Westminster, undertook the execution of the entire work for a sum not far short of $12,500,000 gold.

According to *Iron*, an English trade publication, this great enterprise may be said to consist of three parts: 1. The shutting out of the tidal waters of the Zuyder Zee from the Lake Y (pron. I), situated to the west of Amsterdam. 2. The making of the canal proper. 3. The making of a harbor on the shore of the North Sea at the entrance of the canal. The first part was successfully completed in 1872. It consists of a sea-dyke, cutting off the waters of the Zuyder Zee to the east of Amsterdam, which is intercepted by large locks having three basins, and a pumping station containing three powerful pumps. The sea-dyke is admitted to be the finest of its kind in the kingdom.

The second part consists of cutting the canal through the sand-hills or dunes near the North Sea, and of the construction there of large locks with two basins, the bigger one being able to accommodate vessels 390 feet long, 59 feet wide, and drawing 27 feet of water. Nearly 8,000,000 cubic yards of sand have been removed from this part of the canal alone. It then passes through the Lake Y, where banks had to be made on each side, and the channel dredged to its proper depth. This was done in a very ingenious way, by attaching centrifugal pumps to bucket dredgers, and by their means passing the sand through pipes to a distance sometimes of 400 yards. Five million cubic yards of dredging had to be done in this part originally, but on account of the company being continually called upon to sluice off the water by the North Sea locks to prevent the flooding of Amsterdam, siltage was brought into the canal to the extent of nearly 3,000,000 cubic yards. The land on each side of the canal has been reclaimed and has sold for enormously high prices, amounting in some cases to $600 an acre. There are nearly 12,500 acres of reclaimed land, and by the concession they become the property of the company. The canal will, when fully completed, be 23 feet deep, 20 yards wide at bottom, and have a varying width of from 70 to 130 yards. Its length is 16 miles.

The third portion consists of making a harbor on the coast at the entrance of the canal. This harbor is situated just half-way between the Hock van Holland (entrance into Rotterdam) and the Helder, or Nieuwe Diep, which are nearly 100 miles apart, and will form the only refuge for vessels between these two places along this barren and sandy coast. The canal and harbor were already so far advanced in September last as to allow of the passage of the iron-clad turret ship *Koning der Niederlanden*, the largest and most recent addition to the Dutch navy. Since then many other steamers and yachts have passed out of Amsterdam this way

Eocene Horses.—Two specimens of equine animals, of an earlier form than any that have been previously described, are noticed by Professor Marsh in a recent number of the *American Journal of Science and the Arts*, published in New Haven, Conn. The fossil bones of these extinct horses are now in the museum at Yale College, and were examined by Professor Huxley during his recent visit to this country. They were found by the Yale professor in the lowest eocene strata of New Mexico and Wyoming. They were rather horse-like creatures than horses, in the modern acceptation of the term, being smaller in skeleton than an ordinary fox, although, geologically speaking, they must be regarded as the progenitors of the modern horse. This discovery and the conclusions drawn from it are in curious disaccord with the oft-repeated statement that horses were introduced into this country by early European adventurers, and that the herds of wild horses familiar to pioneers in the territories are not native to the soil; for if the statement is true, as a point of fact, this newly-discovered fossil can not be regarded as the ancestor of any horse now in existence, although it is admittedly of the equine type, and contributes nothing to the establishment of the theory of evolution—an aspect of the discovery upon which Huxley has dwelt at length in his recent lectures. Had it been discovered in Europe, the case would have been a very different one; and the curious mistake of the eminent naturalist seems to show that scientific men can not be too cautious in accepting mere generalities as demonstrated doctrines of science. In Darwinism one important link of the evidence appears to be pretty uniformly, or at least very frequently, lacking. It is this, namely, that species anatomically related must be proved to have some historical or ancestral relation to each other, before the derivation of one from the other can be presumed. In this case, to urge the objection specifically, the testimony is in favor of the view that our modern horses are not in any manner derivative from Marsh's eocene horses; while, on the other hand, these specimens appear, at first glance, to supply a missing link in the necessary proof of the theory, and the appearance is only shown to be delusive when

brought into juxtaposition with the lack of true historical sequence.

Late Theories of the Earth's State.—In a recent address by the celebrated English chemist, Prof. Roscoe, he suggests a doubt with regard to the common view of the molten state of the earth's center, as follows: "Is the inside of the earth fluid or solid? Even in such an apparently simple question as this we are still in some degree of doubt. You may think this is strange, because we find volcanoes throwing out lava, which is liquid rock, and because we find much other geological evidence to show that solid rocks, such as basalt and trap, have been protruded as molten masses within recent geological epochs; but it has recently been shown by Mr. Mallet that the fact of volcanoes throwing out liquid rock may not be inconsistent with the view that the earth, as a whole, is solid. Mr. Mallet's investigations go to prove that this liquefaction of the rocks which we observed may be produced at no very great depth from the earth's surface by the shifting and rubbing together of the rocks, owing to cracking due to the alteration of temperature, just as boys at school rub a button on the bench until it is hot, and then often place it on their neighbor's cheek. Applying the laws of the mechanical theory of heat to this problem, Mr. Mallet believes that the friction of the rocks caused by the secular cooling of the earth and the consequent shrinkage is a sufficient and a satisfactory explanation of the occurrence of the high temperature of volcanic action.

"Sir William Thompson, also, than whom no one is more capable of expressing an opinion, decides in favor of the earth's solidity. He tells us, in his address to the Physical Section at Glasgow, that the conclusion concerning the solidity of the earth originally arrived at by Hopkins is borne out by a more rigorous mathematical treatment than this physicist was able to apply; so that the idea of geologists, who were in the habit of explaining underground heat, ancient up-heavals, or modern volcanoes by the existence of a comparatively thin, solid shell, resting on an interior liquid mass, must now be given up as untenable."

Wholesale Heating and Machine Power.—The time may come when our cities shall be heated from some central source just as gas and water are supplied. This idea may appear absurd at first sight, but there are not wanting persons who are experimenting with this view. For instance, Mr. B. Holly, of Lockport, N. Y., has written a book describing a plan for supplying steam for heating and machine work. He says: "In cities or towns of from 3,000 to 8,000 inhabitants, where the main business portion does not exceed one-half mile square, one set of boilers, located near the center of the place, with pipes leading out in four directions, will do all the work. If the city is one mile square, four sets of boilers will be necessary. The main pipes that leave the boilers will be 4 inch, and diminish to 3, 2½, 2, 1½, and 1 inch at the extreme end away from the boilers; the mains of 4 inches continuing as the use along the lines may demand. The main pipes are placed about four feet below the surface of the earth. The iron pipes are first covered with asbestos, and then put in wood pipes, two inches thick, and leaving a space for confined air between the asbestos and wood. This outside pipe keeps all water and moisture from the steam-pipe and prevents condensation. The pipes, both wood and iron, are put down in lengths of two feet, when they terminate in hollow, upright posts firmly secured in the earth. The upper part of this post is arranged so as to receive the ends of the steam-pipes through stuffing-boxes to allow the pipes to expand and contract without moving the post. The posts are also arranged so as to receive the ends of the service pipes either with or without expansion joints. The service pipes are not taken directly from the mains, but from the hollow supports, thus allowing them to be attached or detached from the support instead of passing through the outside wooden pipe to enter the steam-pipe, which could not be done, because the steam-pipe expands and contracts, while the wooden pipe does not. This overcomes one of the most important objections to the use of long lines of underground steam-pipes when branch pipes are to be taken off. Another objection has been condensation. This the asbestos reduces about three-fourths, and the air space and wooden pipe will reduce it still further. Tests made during the month of July with very small pipe prove that steam may be carried through well-protected pipes for a mile, and then be more economical than any other system. But it is thought that 1,200 or 1,500 feet each way, making a half-mile square, is about all that need be furnished from one location."

Phenomena of Clot in Human Blood.—From a recent series of observations, says Mr. Fairfield, I have to correct an impression as to the manner of the coherence of the red corpuscles of the blood, that would naturally be gathered from physiological text-books. The view of most microscopists is that the red corpuscles are disks, a little raised at the edge, and that the rouleaux (arrangement into columns like rolls of lozenges) result from approximation of the disks to each other. A very careful series of observations, made by spreading drops of blood on slides with a camel's-hair pencil in such a manner as to leave the films of unequal thickness, has convinced me that these bodies are not disklike, but spherical, and that the appearance of disk is a deceptious one, due to the fact that each body is a nearly spherical lens, that condenses the rays of light passing through it nearly to a focal point, before they come in contact with the glass cover which straightens them again. Hence, under inferior glasses the corpuscles

may appear to be faintly nucleated bodies, and, under the best glasses, are more luminous in the center than elsewhere. The cause of this central luminosity may be readily developed by viewing them with a light both low and oblique, when the focal concentration of the rays stands fully revealed, and the surface may be examined at leisure, showing that the shape is undoubtedly globular. The formation of the rolls takes place by approximation of these globules. Their coherence is at first very slight, the roll resembling a string of perfectly round beads just fairly in contact with each other. As the process of coagulation continues, some species of attraction appears to press them nearer and nearer together, and their coherence increases, until they resemble microscopic rolls of lozenges. The tendency of the white corpuscles, on the other hand, is to the formation of larger globular masses in which the original boundaries of the individual corpuscles are scarcely distinguishable. A set of Burdon glasses, of the finest defining power, I have seen, presents the red corpuscles at a moderate light, as faintly-tinged globular bodies. The cell membrane appears to be the seat of the color. Under higher lights, the globular appearance is preserved, but the color-seat can not be identified.

AGRICULTURAL HINTS.

[The mind is the man. Farming, in the highest sense, is not simply doing the hard work necessary. This can be done by muscle when directed by brains. The true farmer is he who can plan, direct, and control skillfully.]

As this department is one which should contain the most recent gleanings of wisdom and experience, our readers and friends in the rural districts are invited to send us any items of value to agriculturists in general, and which should have a wide circulation. Due credit will, in every case, be given to the contributor.

The Homestead Law in Brief.—It may furnish some readers with desired information to state that under the Homestead law, any person twenty-one years of age and over, male or female, native or foreign born—married women excepted—may obtain one hundred and sixty acres of Government land on payment of fourteen dollars fees, and after a residence of five years on the land they can have a clear deed of it from the Government. After six months' residence, if it be preferred, they may get a deed on payment of two hundred dollars, and no further residence will be required. Soldiers may deduct time spent in the service of the Union, not to exceed three years from the five years. By the Pre-emption act any person over twenty-one years of age—except a married woman—may take one hundred and sixty acres of Government land on payment of two dollars fees, and after residing on it six months, or for any time not exceeding three years and a half, may get a deed on payment of two hundred dollars and giving evidence of settlement and improvement. The Timber law gives one hundred and sixty acres to any one planting one-fourth of it in trees and cultivating for eight years; forty to eighty acres may be taken on like conditions. The fees are the same as for homesteading.

Tar on Apple Trees.—According to the experience of Mr. Henry Reynolds, of Montgomery county, N. C., tar is a perfect remedy for scarred and sun-cracked apple trees. He says that by coating with new tar the trunk of a favorite fruit-bearer that was cracked and so decayed that the bark was dead and would peel off, he has restored it fully. He applies it to all the branches that show signs of decay. Since practicing this cheap remedy he has not been troubled with insects. "By applying tar to the trunk," he says, "and clearing away the surface at the roots so as to let it run down on them, peach trees badly damaged by borers are fully restored. Replace the dirt, and you will have no more trouble with the tree for two years or more. If the tar is applied to young trees, the borers will not trouble them at all. The coating should be applied in the winter, or early in the spring, with new tar.

New Remedy for the Potato-Beetle.—A Connecticut agriculturist writes: "It is believed that the best thing to repel this pest has finally been discovered. Having given the several reputed sure remedies a test, including Paris green, without finding any of them perfectly satisfactory, the idea suggested itself that the whole secret of success in getting rid of them lay in coating the potato plant with some substance which is offensive to the vermin. Having nearly half a barrel of air-slacked lime on hand, a trial of that was made by dusting over the whole plant just at sundown; several thickly-infested plants being selected for trial. Upon the following morning those plants which were the subject of experiment had been wholly deserted, and the bugs could be seen sitting dejectedly on the neighboring weeds and fence. Since, the same application has been made to several acres of potatoes, which were badly infested, with equally satisfactory results, the bugs generally leaving the plants in a few hours, and many of them rolling off immediately they were touched by the lime. It has the advantage of being perfectly harmless to use, and is cheap and easily applied, while its pungency can not be endured by even a rascally potato grub."

Pruning.—Mr. D. H. Jacques, of Fernandina, Fla., is writing a series of articles on "Gardening all the Year Round," for the

Semi-tropical. His discussions and directions have a more particular application to the climate and soil of the Southern States than to ours, but he now and then drops a word of counsel which may be profitably followed by agriculturists generally. Such, for instance, is the following:

"Never prune, either in summer or winter, without a definite object in view—to regulate the flow of sap, to promote growth or fruitfulness, to improve the form of the tree, to keep all the parts open to the sun, so that the fruit may ripen evenly and so on. Do not cut and slash at random, or without some good reason.

"Pruning to promote wood growth should be done in winter. This proceeds upon the principle that the sap which would have been appropriated to the support of the branches, or parts of the top, taken off, will go to increase the vigor of the parts which remain. This is true within certain limits, but the process must not be carried too far. *Sufficient top must be left to supply leaves for the elaboration of the sap.*

"Wounds made in summer heal more readily than those made in winter, and if we have any branches of considerable size to take off we prefer to do it in June or July. To promote fruitfulness in young trees of rapid growth we, at the same time, 'pinch in' or slightly cut back the leading shoots, to check the tendency to the production of wood and encourage the formation of fruit-spurs.

"If one part of a tree should outgrow another part, the former may be shortened-in in winter, and the shoots pinched off the next summer, till the sap is thrown in the right direction into the weaker branches, and the balance restored. When you desire the new shoots of a branch to take an upright direction, prune to an inside bud; while, if you wish an open, spreading top, prune to an outside bud, etc. Do not trim the stems or trunks of your trees (whether ornamental or fruit trees) to bare poles, but allow the branches to form near the ground, as they naturally will in open ground. Your ornamental trees will thus be more beautiful, and your fruit-trees more likely to be healthy and bear well.

"Get good, healthy, shapely trees and begin aright with them, and very little pruning will be required at any season of the year. Where trees get diseased or branches broken, as they will sometimes, with the best of care, the saw must be brought into requisition, but in general the thumb and fingers and the pruning-knife are the only instruments required, and these may be judiciously used any and every month in the year.

"Pruning, however, it must be remembered, is, at best, a choice of evils, and the aim should always be to avoid the necessity for making any such choice."

Cow Physiognomy and Character.—A writer in the *Galaxy* has been studying the friend of man which gives him milk, and thus discourses: "What a variety of individualities a herd of cows presents when you have come to know them all, not only in form and color, but in manners and disposition. Some are timid and awkward and the butt of the whole herd. Some remind you of deer. Some have an expression in the face like certain persons you have known. A petted and well-fed cow has a benevolent and gracious look; an ill-used and poorly-fed one a pitiful and forlorn look. Some cows have a masculine or ox expression; others are extremely feminine. The latter are the ones for milk. Some cows will kick like a horse; some jump fences like deer. Every herd has its ringleader, its unruly spirit—one that plans all the mischief and leads the rest through the fences into the grain or into the orchard. This one is usually quite different from the 'boss of the yard.' The latter is generally the most peaceful and law-abiding cow in the lot, and the least bullying and quarrelsome. But she is not to be trifled with; her will is law; the whole herd give way before her, those that have crossed horns with her, and those that have yielded their allegiance without crossing. I remember such a one among my father's milkers when I was a boy—a slender-horned, deep shouldered, large-uddered, dew-lapped old cow that we always put first in the long stable so that she could not have a cow on each side of her to forage upon; for the mistress is yielded to no less in the stanchions than in the yard. She always had the first place anywhere. She had her choice of standing room in the milking yard, and when she wanted to lie down there, or in the fields, the best and softest spot was hers. When the herd were foddered from the stack or barn, or fed with pumpkins in the fall, she was always first served. Her demeanor was quiet, but impressive. She never bullied or gored her mates, but literally ruled them with the breath of her nostrils. If any new comer, or ambitious younger cow, however, chafed under her supremacy, she was ever ready to make good her claims. And with what spirit she would fight when openly challenged! She was a whirlwind of pluck and valor; and not after one defeat or two defeats would she yield the championship. The boss cow, when overcome, seems to brood over her disgrace, and day after day will meet her rival in fierce combat."

Agriculture as a Safe Business.—We have the word of a New England exchange to the effect that the farmer is the safest man, financially, in the country. Of 1,112 bankrupts last year in Massachusetts, only fourteen were farmers, yet the farming community numbers full half the population. The people must live, and while the use of luxuries may be diminished by hard times, there will always be a call for the produce of the farm. Farming has of course felt the general depression in business. But we are in a transition state, from inflation and extravagance to a condition of simple living and economical expenditure, and a state of transition is always fluctuating and uncertain.

Mrs. C. Fowler Wells, *Proprietor.*
H. S. Drayton, A.M., *Editor.* N. Sizer, *Associate.*

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A WORD OR TWO ON EVOLUTION.

LIKE other editors, we have been asked over and over again for our opinion on this great bugbear of the age; and we have hesitated to give expression to our views, partly because they are not entirely satisfactory to ourselves, and chiefly because we were doubtful of our ability to present them so definitely and clearly that we should not be misunderstood.

Evolution in its application to man represents him as the final outcome of a wonderful process of growth. In the course of this growth low forms of organic life became transformed into higher, the highest vegetable passed into the lowest animal, and the lowest animal, by successive accretions of qualities, physical and instinctive or mental, were advanced upward through the different species and orders until man was reached.

Now, while we concede that the disciples of Lamarck, Darwin, and Spencer have prepared a splendid scheme of reasoning, based upon a broad array of data, we do not concede that they have demonstrated their theory. The circumstantial evidence of probability may be very potential, but strict science does not accept probabilities, however potential, as complete evidence. Allowance is given for the framing of hypotheses upon seemings, for hypotheses have been often found of great value in scientific research, but their application as positive conclusions is inadmissible until accumulated facts provide the necessary warrant.

We find that the data of the development theory are incomplete in testimony most essential to its establishment, viz., in organisms showing the transitional forms or links between different species and orders. While an ascending series of animal life is clearly enough indicated, cross divisions, or varieties combining the physical properties of adjacent species, are wanting in higher forms, where most of all evolution needs evidence. The difficulty in determining the place of some low forms, whether they should be assigned to the vegetable or to the animal kingdom, is not only made a basis for reasoning with reference to the kinship and derivation of those low animal forms, but is wrought into an argument for the assumption that there is a derivative relationship between the ape and man. Analogy, to our mind, is here carried beyond the bounds of logical propriety.

Grant this theory of evolution, and we are forced to grant the development of the intellectual qualities of man from mere instincts—personal cognition and the capability of complex perception and discrimination in matters physical, moral, and esthetic from a nervous state in the animal capable only of recognizing the need of food for subsistence. In other words, from physical impulse moral discrimination may proceed; therefore, the less can include the greater—the less can generate the greater.

Out of the intellectual properties of man have grown the moral, the evolutionist tells us. And although sundry metaphysical

thinkers of the past, like Locke, Hume, Berkeley, Brown, and Stewart, have labored to supply an intellectual definition of the moral powers, they have not satisfied themselves or us; there is a margin of difference between the moral apprehensions and the intellectual perceptions which we recognize, and may, to a considerable degree, understand, but can not compass by mere reasoning.

Mr. Darwin himself gives an excellent specimen of the inadequacy of science to resolve the nature of morality. He characterizes it as "tribal self-preservation subtilized into etiquette," according to a late reviewer. Can it be possible to bring within the scope of so narrow a view the qualities of heroism, self-sacrifice, ingenuous amiability, the refined affections, patriotism, brotherhood, philanthropy, spirituality? The attempt to relegate these to "tribal self-preservation subtilized into etiquette" appears scarcely short of ludicrous.

One may affect to see how natural selection, if admitted, has tended to the differentiation of physical characteristics and of mental habits, types of which already exist, but we can not hold in other light but that of speculation the reasoning which claims that types of high intelligence and morality were generated by or through low forms. Such reasoning ignores the natural law that like produces like.

Professor Owen says that the remains of extinct animals show a more generalized structure than recent and living animals. Man belongs to a comparatively recent period, and to the "specialized" structures, and notwithstanding his anatomical similarities to the simian, and to the horse and dog also, his mental organism is infinitely superior, and proclaims him of a different order of life. While the Hottentot is amenable to intellectual and moral culture, often under missionary auspices exchanging his barbarism for a character of intelligent industry and philanthropy, the ape, excepting his capability of acquiring a few amusing tricks, which he will perform under the eye of his master, shows no qualities which imply mental expansion, to say nothing of moral apprehension.

Some of the great teachers on this subject consider the lower animals as mere vital automata, and even go so far as to question whether man is more than a conscious automaton, little thinking of the logical tendency of such reasoning. In reference to this side of the doctrine of evolution, Goldwin Smith asks: "What can be imagined more strange than an automaton suddenly becoming conscious of its own automatic character, reasoning and debating about it automatically, and coming automatically to the conclusion that the automatic theory of itself is true?"

One other point must close our brief reflections. We find ourselves totally unable to reconcile the universal belief in the immortality of the soul with the evolution hypothesis. This belief, too, is gradually extricating itself from the relics of old superstitions and coming into a clearer, purer conception of the nature of future existence. Associated with this belief, or constituting a part of it, is the conviction that moral responsibility extends beyond the present life; and in those classes which possess the highest general culture, we find this conviction to be most strongly entertained.

THE POLITICAL SITUATION.

THE long agony of counting the electoral vote found an end, after a protracted session of Congress, in the announcement of Rutherford B. Hayes as President of the United States for the next four years. Whether or not President *de jure*, he is

President *de facto*, and the country at large breathes more freely than it has at any time since the result of the November election was found to be involved in uncertainty, and the two great parties stood up in fierce opposition, each imputing to the other a want of honesty in dealing with the returns. In the last days of February there were scenes in the great assembly of the nation which caused thrills of apprehension to many a patriot heart, lest the taunt and challenge of acrimonious debate, and the occasional tendency to uproar and confusion should take a more serious turn, and the torch of civil war be kindled anew. But those who were apparently irreconcilable became conciliating; the fierce strife of tongues settled down into mild protest, or courteous agreement, and the ship of State once more sails upon a placid sea.

Our new President has grave responsibilities to meet; and it is the duty of every citizen to encourage and strengthen him by giving moral support and sympathy. The uncertainty of the past three months has cost the producing interests of the country millions of dollars; let us all now join heart and hand in the endeavor to redeem what has been lost. Away with the shameful, pernicious machinations of partisanship which have brought upon us so much public and private injury. Let us be instructed by the sharp experiences of the past fifteen or sixteen years, and co-operate earnestly for the establishment of a true and lasting peace within our borders, and for the promotion of the welfare of the citizens of every State. The prosperity of the Republic means the prosperity of every citizen. And we believe that Mr. Hayes earnestly desires it, but unless he be aided by public sentiment at large, his plans, however well laid, will be likely to fail of the desired result.

A SCHOOL-TEACHER'S DIAMONDS.

A FEW months ago the young ladies of an aristocratic, gilt-edged boarding-school were thrown into a state of grievous perplexity and fear by the unceremonious visit of two or three professional detectives, who ransacked their rooms promiscuously, opening trunks, closets, and band-boxes, impertinently peering into bureaus and recesses, and even, in their "horrid" audacity, daring to invade the sacred interior of their escritoires and jewel cases. The reason for this raid of the minions of the law was the information which had been communicated that the mistress of the school had lost her diamond jewelry, value two thousand dollars, very mysteriously. In fact, they *must* have been taken by one of the lady pupils, but how or why, as they were all of wealthy families, it was impossible to conceive.

The detectives who had been authorized to "work up" the case went at it with their customary energy, giving little heed to maiden protests, blushes, and indignation; and after exploring the upper floors of the building, went to the basement and thence into the cellar. Some boxes of coal ashes lying there unsifted, they set to work to scrutinize their dusty mazes, and were rewarded by finding the precious gems, minus the gold setting, which had been melted off. Immense relief on the side of teacher and pupils, and a hundred or so for the morning's successful work of the officers!

"But how could they have got into the ashes?" asked the grateful teacher. "I had them last in my pocket, wrapped up in a handkerchief."

"Why, it is probable that an end of your handkerchief was hanging out of your pocket, and while passing the stove in your dining-room, where these ashes came from, the loose end caught in the open door, and the

handkerchief and jewelry were jerked into the fire without your notice."

Moral: (1.) Teachers of young ladies' boarding-schools should be careful how they carry rich jewelry about them.

(2). Should school-teachers wear $2,000 diamonds?

WHISKY vs. LAW AND HUMANITY.

IN one of the newspapers of Western New York we read an account of certain outrageous actions visited upon the Rev. W. Ball and family, of St. Lawrence Co., because of his energetic advocacy of temperance reform. Mr. Ball had performed his duty as a pastor so well, that the liquor-venders of his town all at once found themselves "in a fix"—not able to procure a license for the sale of their liquid poison. But whoever knew of whisky-sellers and whisky-guzzlers who were nice in their observance of laws which restricted their alcoholic relations? License or no license, whisky they would sell and whisky they would drink, and when the officers of justice called them to answer for their disregard of the duties of citizenship, they proceeded to a more overt demonstration of brutish lawlessness, by hanging Mr. Ball in effigy, and subsequently attacking his house in a savage manner, while he was absent, and only women were at home.

But this is only another proof of the inhumanity of the liquor traffic. Every day the dweller in town or city witnesses some evidences of the cruelty and impurity of alcoholism; and every day the lover of decency and justice asks, "Why must this be?" Oh, mockery of our boasted civilization! Every man worthy the name of intelligent knows the influence of alcohol on man, reducing him in besotment to a condition even lower than the brute; and knows how great is its pecuniary cost to the community, the State, and the nation; and yet its hydra corruption is permitted to pollute the stream of life, and dwarf and pervert much of the best growth in human society.

Rum-shops banished, every man made, "will he, nil he," a votary of sobriety, and we would guarantee the nation against financial panics, ring-frauds, and political convulsions. Indeed, who would not?

ERRATA. — In the April number the types make the Christian name of one of the "rival governors" of South Carolina to read "David H.," whereas it should read "Daniel H." Also in the article entitled "Symbolism of the Features," fig. 5 is described as "Kosciusko," when it should be "Kossuth."

A GOOD SIGN.—In Austria inter-class prejudices and jealousies of medicists do not have the prominence which is exhibited in America. A correspondent of the New York *Medical Journal*, Dr. Howard, writes:

"The hydropathic or 'Wassercur' establishments, at least as far as I have seen, appear to occupy a closer relationship to the general profession here than with us. At the large establishment, under Dr. Friedmann, at Vöslan, about an hour from Vienna, one meets not only the physicians resident in that immediate locality, but also some of the principal professors of the Vienna University, who consult freely with the resident physicians, or with each other only, respecting the hydropathic or other medical treatment, according to the nature of the case."

The attitude of the *Medical Journal* toward hydropathy has altered not a little within the past year, its editors having admitted a good deal of testimony in favor of water treatment, both from foreign and

home practice. We regard this exhibition on the part of the leading organ of the "regulars" as an evidence of the development of a liberal sentiment, which will be conducive to medical progress and popular sanation.

Our Mentorial Bureau.

[In this Department will be noticed such matters as are of interest to correspondents and to the general reader. Contributions for "What They Say" should be brief, pointed, and creamy, to secure publication.]

To Our Correspondents.

THE PRESSURE OF OUR BUSINESS IS SUCH *that we cannot undertake to return unavailable contributions unless the necessary postage is provided by the writers. In all cases, persons who communicate with us through the post-office should, if they expect a reply, inclose the return postage—stamps being preferred. Anonymous letters will not be considered.*

QUESTIONS OF "GENERAL INTEREST" ONLY *will be answered in this department. But one question at a time, and that clearly stated, must be propounded, if a correspondent shall expect us to give him the benefit of an early consideration.*

IF AN INQUIRY FAIL TO RECEIVE ATTENTION *within two months, the correspondent should repeat it; if not then published, the inquirer may conclude that an answer is withheld, for good reasons, by the editor.*

LEARNING PHRENOLOGY.—If you will read in the February number of the JOURNAL in the Supplement, p. 11, you will find a list of the books we recommend to students to read with a view to becoming members of a class in the Institute. A fair English education is sufficient to become a phrenological student. Of course, a thorough, classical education would add to a man's power as a lecturer. John B. Gough and many others lecture well without having received a college education.

FILTER FOR WATER.—Will you give me a simple recipe for making a filter cheaply, one which will serve for a moderate family?

Answer: We have occasionally considered this subject and given directions for the making of filters. Our *Health Almanac* for 1876, contains a carefully prepared article, with illustrations. A simple filter may be prepared thus: Take an ordinary water-pail or tight keg, and bore several small holes through the bottom, within a circle, say five inches in diameter; over the holes spread a piece of thin woolen cloth; then spread a layer of clean gravel, say pea-size, an inch thick; then an inch of sand, coarse below, growing finer above; then fill in six inches deep with charcoal, pulverized to the size of blasting powder, but sift out the dust. Such a filter will effectually purify all the drinking water of a family for a week or two.

Of course, it is better to have a larger and more permanent arrangement, in the shape of a tall barrel or tank fitted with a double bottom, on top of which the gravel, sand, and charcoal are successively placed. It is conveniently covered with a tin-pan fitting the top, into which the water may be poured, and from which it seeps slowly through a sponge over a strainer in the middle of the pan, into the charcoal below. A filter of this kind is very generally used in hygienic families, and a five-gallon one will serve for six months or more before it needs replenishing, unless, indeed, the water put in the top be too foul to be fit for use in any case.

ROMANCE.—W. A. S.—The faculties of Ideality, Spirituality, Constructiveness, and the perceptive organs of the intellect, have chiefly to do with the writing of romances, especially those of a vivid, original, coherent sort. Writers whose reflective organs are somewhat in the ascendancy, are given to weaving in a good deal of philosophy and discussion, making their characters argue points of interest to the writer. Writers whose Benevolence is strongly marked, are given to introducing thoughts and personations of a gentle, sympathetic, benevolent cast.

GROWTH OF BEARD.—R. W.—We know of nothing which will positively induce a rapid and profuse growth of the beard on the face of persons whose temperament and constitution are adverse to hirsute conditions.

Our charge for characters from photographs is $5. The circular entitled the "Mirror of the Mind" explains fully how likenesses should be taken for the use of the phrenologist. A green stamp will secure it.

ONIONS.—E. C. H.—These roots can not be said to be unhealthful if eaten after due preparation for the table. The fact of their affect

ing the breath unfavorably is the chief objection. Cooking them in a measure disposes of this, but not altogether. We think that the onion should be boiled or roasted before it is eaten. In diseases of a scorbutic nature the use of the onion as an article of diet has a curative tendency.

"EMPHATIC DIAGLOTT."—M. E. B.—This valuable edition of the New Testament is printed in the old Greek text, but is divided into verses and chapters corresponding with the version in common use. An interlinear word for word translation is a feature.

LAWYER.—One to be a good lawyer should have a well-developed organization. He should have a strong intellect, good Constructiveness, energy, industry, decision, kindness, and geniality. It would be difficult for us to prescribe a course of reading unless you indicated some special department. In general, we will advise you to read in the direction of your inclinations, avoiding, however, the light and meretricious.

POTTERY.—J. C.—The potter manufactures articles of clay and plaster for use and ornament. It is he who turns out the exquisite dishes and cups which the lover of a well-decked dining-table so much likes to see in the service. You reside in a city where large potteries have existed for twenty years. We think they are to be found in the southern section, in the neighborhood of the old Morris Canal. A visit to one of them during working hours would furnish you more information than we could should we occupy pages.

REASON AND MORALITY.—E. A. I.—*Question:* Is it possible for a person entirely void of reason to be a moral and intellectual person?

Answer: We think not.

WEEPING FACULTY.—N. N. A.—*Question:* Has there been any organ discovered the faculty of which, when strongly developed, would make the possessor disposed to cry?

Answer: The disposition to weep is based rather upon temperamental quality than upon organic function. One having large Benevolence, associated with a very excitable, nervous temperament would, especially if the bodily condition be weak, be more inclined to shed tears than one otherwise constituted. Some with large Caution and a weak organization otherwise, may be easily fretted and annoyed, and so made to weep.

STAMMERING.—S. E. S.—We think that honest endeavor in the line advised by the article published in our "Illustrated Annuals" combined, will ultimately conquer this troublesome habit altogether, or in great part. There are some physicians who make the treatment of stammering a specialty, and with much success. We think that care on the part of the sufferer, self-training in articulation, will prove quite as remedial, though more time may be occupied.

REFLECTION — KNOWLEDGE HEREDITARY.—Student.—Ideas are said to come into the mind occasionally by a sort of spontaneity or instant suggestion. They, however, on analysis, are found to be associative. It is impossible to reflect without knowledge; there must be a subject for consideration; the subject forms a part of our acquired knowledge. Faculties of perception and application are hereditary with reference to their strength and facility of exercise. We see persons around us who indicate original aptitude or tact in certain directions. They can make ready use of the acts or the knowledge which their life experiences contribute.

Several questions await consideration in the next number.

What They Say.

PSYCHOLOGICAL IMPRESSIONS.—A few years ago while at home ill with what my doctor treated as dropsy, twice every day I was attacked by paroxysms of violent coughing, which lasted about two hours. They were so severe as almost to suspend my respiration. One day while suffering from one of them, my mother approached my bedside with a remark that she could ease my suffering. Unthoughtfully she put her hand upon my head, and drew her fingers through my hair. She had scarcely done so four times before I felt some ease, and in a few seconds more the cough almost entirely abated. A minute or two after she had withdrawn her hand the coughing returned, but on resuming her manipulations I was almost instantly relieved. Thereafter she attended me every time the paroxysms came on, and I was invariably relieved. I do not know what eventually cured me; if it was the passes or the medicines which I took, and it remained a great mystery to me for many years. My mother is very credulous; believing that the smallest unexpected favors she receives are special gifts from God, and she always insisted that this occurrence was a God-send. Indeed, I believed so myself till about two years ago, when I became acquainted with your valuable publications. Your "Library of Mesmerism" not only explains what I have said, but many other mysterious subjects with which I have long been familiar, but whose philosophy I could not understand. The following are a few of them:

When sitting near a person (particularly a female) in silence, and meditating upon a subject

very intensely, I have found that she would be thinking about the same subject as myself, and often give her opinion unasked upon what I was going to say.

Again, while in a prayer-meeting, or some other religious gathering, I would wish for one of my favorite tunes to be sung; and two to one my wish would be gratified, especially if my position was not far from the leader.

Again, the following dream is in singular keeping with the subject: My wife and I while in Liverpool, occasionally visited the house of Mrs. L——, on P—— Street. During an absence of five months from England, Mrs. L—— moved to St. P—— Street, taking a house of peculiar style, and situated close to the railway bridge, and with a church in front. On my return my wife (who resides in Wales) related to me her dream, which was briefly as follows: She thought she was in Liverpool, walking round a strange square, that had a church in the center and a railway bridge at one end; as she neared the latter, suddenly a door was opened, and Mrs. L—— came out, and informed her that they had moved there since the first of August.

The date and the description of the house agreed exactly with what I knew was true. Subsequently I took her unwares through the square, and she instantly recognized the house from the impressions of her dream.

PARVUS NAUTES.

THE FATHER'S RETURN.—A bright fire was blazing cheerily on the hearth on a cool autumnal afternoon, casting a glow of comfort around the tidy sitting-room. There a mother, surrounded by her "jewels," was anticipating the joy of a reunion with her husband. "There, how much your father will enjoy resting after his long ride," she said, while drawing up an easy chair. Little two-year-old Willie, although deeply interested in "making funny men," left his toys, and with a self-satisfied air, placed a pair of slippers by the large chair, saying: "I will have papa's slippers ready." Another little voice responds: "I will hang up his hat;" and still another, wishing to participate in adding to his comfort, says: "And I will hand him a glass of water." With hearts overflowing with love and gratitude for the dear one who has surrounded them with so many comforts, each has a desire to return his kindness, if only in a feeble way.

What a yearning desire the wife has to deserve the name of "helpmeet;" to feel that her education and talents are directed for the good of her household, and that her efforts—although they may seem insignificant when compared with his business cares—are not ineffectual. Circumstances and custom forbidding her assisting him pecuniarily, a spirit of independence and self-abnegation prompts her to compensate him for his labor of love, not with dollars and cents, but by diligently discharging the duties imposed upon a wife and mother, by good management and economy in the household. Occasionally a feeling of dissatisfaction flits across her when reviewing a day's work, but after considering the time expended on one of the dearest duties of a mother, attending to the wants of the innocent babe, kissing the bumped heads and tying up the cut fingers of the little ones; brushing the hair from the moist brow of her frolicsome boy, after a morning's romp; and superintending the many parts of domestic service, she concludes that her efforts have *not* been wasted.

How pleasant the thought: "The heart of her husband doth safely trust in her," to the true home partner! The most complicated details of business are not considered beyond her comprehension, her opinion and views are not deemed unworthy of consultation, or her judgment disregarded.

Were this always the case, there would be less extravagance and fewer pecuniary failures. Let wives prove themselves worthy of this confidence. A happy, unbroken family! What an inestimable gift!

Let us not live merely for our own happiness and pleasures, taking a contracted view of life, desiring only self-aggrandizement and prosperity, but let us care for the destitute and homeless, sympathize with the bereaved, especially those stricken ones—the widow and fatherless. Whose heart is so selfish and devoid of feeling as not to be moved by the touching thought of a home no more to be made joyous, the light of the household extinguished forever? How often, too, that word widow, one of the saddest in our language, is thoughtlessly and jestingly spoken, sending a thrill of pain and a sigh of loneliness to many a broken heart! Let us commend them to One whose sustaining hand can safely and tenderly guide them.

F. D. M.

AN EARNEST WORD.—*Mr. Editor*:—I have the JOURNAL open before me where it quotes the words of Jean Ingelow, "Love me, and tell me so." Now, I am only an obscure little body, occupying only an obscure little corner of this busy, moving world; but I have been a reader of this JOURNAL for two years, and it is such a source of real, profitable, instructive pleasure, I would not give it up for *any* other journal. It does not seem as though I were *quite* out of the world when, buried deep in the perusal of its pages, I behold, as it were, the works and grand results springing from the minds of such men, who, believing with Horace, that "human life grants nothing to man without great industry," have striven and struggled, perhaps from adverse circumstances, cultivating and perfecting

those noble principles and qualities of head and heart which proclaim man the noblest work of God, and have gained at length the object for which all their efforts were directed, and then handed to the world the fruit of their labors.

I venture, too, to say that a share of the world's good owes its success to Phrenology, and if I thought that any little word of mine—among the many who will encourage you—would help in any way to stimulate you in your efforts, I should feel as though I had left undone a part of my duty, did I not say to the PHRENOLOGICAL JOURNAL, "I love you." LOUL.

[We are of opinion that to just such "obscure little bodies" the enterprise and activity of most communities are due. And we are quite willing to trust the maintenance and success of the PHRENOLOGICAL to their sympathy and co-operation.—ED.]

WISDOM.

"Think truly, and thy thought
Shall be a fruitful seed."

THE key to the penitentiary—Whis-key.

THE less we parade our misfortunes, the more sympathy we command.—ORVILLE DEWEY.

HABIT IS A CABLE. We weave a thread of it every day, and at last we can not break it.—HORACE MANN.

WHAT makes the Dead Sea dead? Because it is all the time receiving, never giving out anything. This is the case with too many men.

BUY not, sell not, where self-respect is bartered, for that once lost, the mainspring of honor is rusted and decayed.

THE plaintiff and defendant in an action at law are like two men ducking their heads in a bucket, and daring each other to remain longest under water.—JOHNSON.

LOVE is circumspect, humble, and upright; not yielding to softness or to levity, nor attending to vain things; it is sober, chaste, steady, quiet, and guarded in all the senses.—THOMAS A'KEMPIS.

IT is only by labor that thought can be made healthy, and only by thought that labor can be made happy, and the two can not be separated with impunity.—RUSKIN.

GATHER UP THE FRAGMENTS. In every human life there are sure to be some. Every one of us has a secret chamber somewhere, filled with inhabitants whom none but himself can see. It rests with himself alone whether they shall be decaying corpses or only beautiful ghosts.—MISS MULOCK.

THE man who lives right and is right, has more power in his silence than another has by his words. Character is like bells which ring out sweet music, and which, when touched accidentally even, resound with sweet music.

MIRTH.

"A little nonsense now and then,
Is relished by the wisest men."

"DIDN'T she return your love?" "Yes, she did; she said she didn't want it. That's what's killin' me."

A CORONER'S jury, in the case of a man who was killed by a falling icicle, rendered the verdict that he "died of hard drink."

"I NEVER did like mutton with capers," Brown said, as he brushed his clothes after an attack from a ram.

A DILAPIDATED tramp was heard recently inveighing against people who do not clean off their sidewalks. "I expect every minute," he said, "to fall down and break my watch."

A VISITOR at Philadelphia, being asked whether he preferred pictures to statuary, said he preferred the latter, as "you kin go all round the statoos, but you can't see only one side of the picters."

"WHY in the world don't you go to work?" inquired a citizen of a lazy fellow who was trying to borrow some money of him. "Go to work?" echoed the man, "how can I do anything till I know for certain who is going to be the next President?"

Little Black Monkey sat up in a tree,
Little Black Monkey he grinned at me;
He put out his paw for a cocoanut,
And he dropped it down on my occiput.

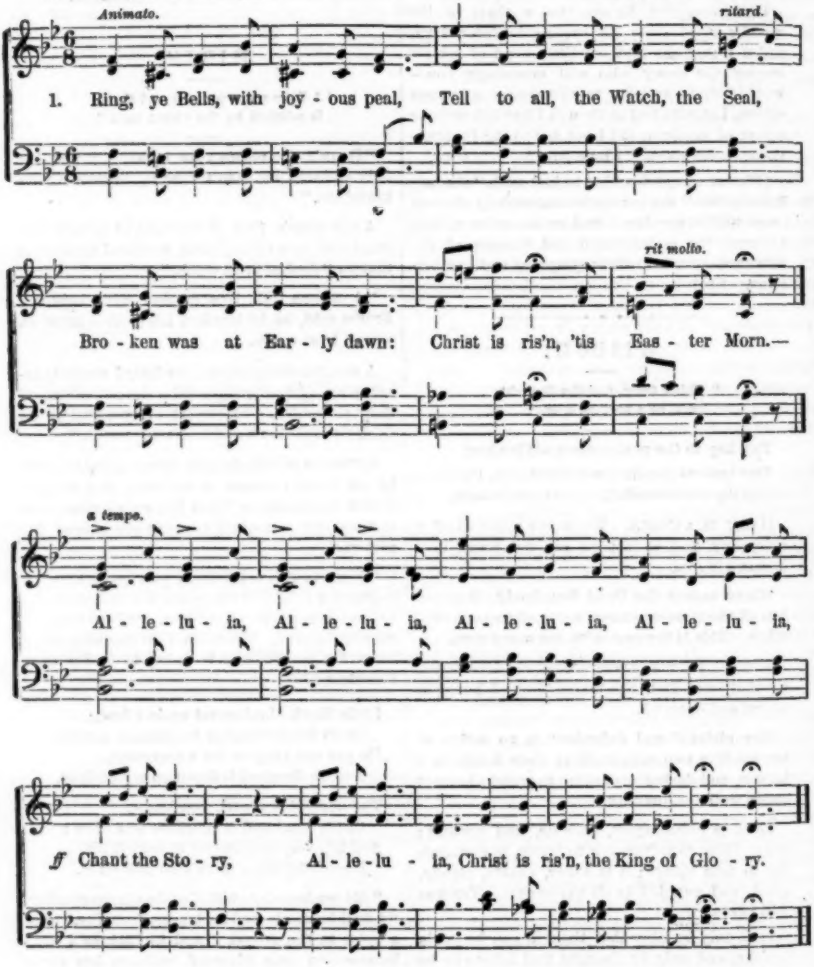
The occiput is a part, you know,
Of the head and is sensitive to a blow;
And it's very unpleasant to have it hit,
Especially when there's no hair on it.

"MY business is to talk," said a stump-speaker. "I deal in words and sentences." "Yes," said a voice in the crowd, "and as long as I have known you your place of business has never been closed."

SHE was fond of conundrums, and when she learned that *mulier* was Latin for woman, she thought she had a good one. So she asked her husband what was the difference between herself and a mule. And as he had been married several years he was too thoughtful to trouble her by guessing, but kindly remarked that he had never been able to see any.

Ring, ye Bells.

(An EASTER CAROL.)

Words by MRS. E. H. OGDEN. Music by S. J. ANDERSON.

Animato.
ritard.
1. Ring, ye Bells, with joy - ous peal, Tell to all, the Watch, the Seal,
rit molto.
Bro - ken was at Ear - ly dawn: Christ is ris'n, 'tis Eas - ter Morn.—
a tempo.
Al - le - lu - ia, Al - le - lu - ia, Al - le - lu - ia, Al - le - lu - ia,
ff Chant the Sto - ry, Al - le - lu - ia, Christ is ris'n, the King of Glo - ry.

II.

Wreathe the Cross with flowers gay,
Freely give your alms to-day,
Crown anew the Sacred Head,
He is living, who was dead:
Alleluia, Chant the Story,
Christ is ris'n, the King of Glory.

III.

Hear the loving Lord's Commands,
Hither come, and from my hands,
Take forgiveness, blessed prize,
Rest and Peace in Paradise.
Alleluia, Chant the Story,
Christ is ris'n, the King of Glory.

Library.

THE FUNCTIONS OF THE BRAIN. By David Ferrier, M.D., F.R.S., Professor of Forensic Medicine in King's College, London. With numerous Illustrations. 8vo, cloth, pp. 323. New York: G. P. Putnam's Sons.

Introducing his subject with the modesty of the true scientist, Prof. Ferrier admits the intricacy and complexity of experimental investigations in nervous function, but finds in applying the new method of electric excitation less difficulty in approximating definite results than was the case by the old processes of vivisection and destruction. "We are still only on the threshold of the inquiry," he says, "yet it is sometimes useful to review and systematize the knowledge we have so far acquired, if for no other reason than to show how much still remains to be conquered."

The opening chapters are occupied with a description of the structure of the brain and spinal cord, and a consideration of the mechanical functions of special parts of the brain in the light of the known views of eminent investigators, Schiff, Ludwig, Woroschiaff, Vulpian, Meynert, Goltz, and others. As the author passes in review the more important experiments of late anatomists, and indicates with much clearness their results, the work is valuable as a compendium aside from the special features of Prof. Ferrier's own researches.

In the chapter devoted to the Functions of the Cerebellum, the author notices the phrenological assignment of the sexual function to it, and expresses the opinion that the phenomena of his experiments, and those of others, do not confirm such assignment; he quotes, however, the work of Serres (Anatomie Comp. du Cerveau), in which the median lobe alone of the Cerebellum is regarded the seat of sexual appetite, after the observation of cases in which disease of the median lobe was "found to co-exist with priapism or excitement of the Generative Organs." The experiments of an American neurologist, very recently made and epitomized in the December number of this magazine, tend to confirm the opinion of Gall and Broussais, as he found that injury to the genito-urinary organs was reflected upon the nervous track directly toward the Cerebellum, and produced tissue changes and degeneration of that ganglion.

Prof. Ferrier's experiments were made upon monkeys, dogs, jackals, rabbits, and other animals. The species of monkey selected was the Macacque, of which the brain is carefully illustrated and described, and the centers of electrical irritation indicated upon diagrams. Repeated application of the electrodes produced fifteen different classes of movements, corresponding with as many different nervous centers. In the brain of the dog, also illustrated, he found fifteen centers also, with definite muscular relations. The results obtained in exploring the unconvoluted brains of small animals like rabbits, guinea-pigs, and rats were essentially similar.

The account of experiments made by the author for the purpose of ascertaining the sensory centers is very interesting, and some of the results appear to have the character of demonstrations—namely, the destruction of the Angular gyrus in one hemisphere destroys the sight of the eye on the opposite side; the Hippocampal region is the center of tactile impression, etc. To the metaphysician the statements with regard to the negative results attending Prof. Ferrier's irritation of the antero-frontal regions, will have a special interest. Quoting from p. 231: "Removal or destruction by the cautery of the antero-frontal lobes, is not followed by any definite physiological results, etc. . . . And yet, notwithstanding this apparent absence of physiological symptoms, I could perceive a very decided alteration in the animal's character and behavior. . . . . Instead of, as before, being actively interested in their surroundings, and curiously prying into all that came within the field of their observation, they remained apathetic or dull, or dozed off to sleep, responding only to the sensations or impressions of the moment." In other words, the animals had evidently lost the quality of intelligence or associative thought, and were little more than automata. Chapter XI., in which the hemispheres are considered psychologically, contains an occasional remark which is encouraging to the phrenologist; for instance: "The development of the frontal lobes is greatest in man with the highest intellectual powers." And: "The phrenologists have, I think, good grounds for localizing the reflective faculties in the frontal regions of the brain, and there is nothing inherently improbable in the view, that frontal development in special regions may be indicative of the power of concentration of thought and intellectual capacity in special directions."

This volume should be attentively read by all who have a professional relation to the subjects of phrenology and physiology.

HOW TO TEACH According to Temperament and Mental Development; or, Phrenology in the School-room and the Family. By Nelson Sizer, author of "Choice of Pursuits," etc. 12mo, cloth, pp. 331. Price $1.50. New York: S. R. Wells & Company.

Few attempts have been made by writers to present the important subject of juvenile education in accordance with its scientific aspects, because of the lack of scientific data in the meth-

ods of training in common use. We have not as yet heard of any well-arranged and efficient plan of child-training which does not take into account the fundamental principles of phrenological science. In fact, as proper classification lies at the basis of true success in teaching, there can not be this classification without a correct analysis of the mental faculties. Outside of Phrenology, or without its aid, an analysis which satisfactorily serves does not exist. Mr. Sizer has entered fully into the consideration of the mental organism of children, and discusses it apart from, and in association with, physical qualities or temperament. He shows how children differ in educational susceptibility, and why, and prescribes methods for the training of different classes of minds. This is, of course, the most valuable feature of the work, and its thoughtful reading by teachers must prove of great advantage to them. The text is illustrated in such a manner as to render the author's points thoroughly intelligible to every class of readers, scientific and unscientific, and assist, because of their fidelity to nature, in enforcing conviction.

We take it that no teacher, who loves his vocation and aims to secure the best results, will neglect an opportunity to read this last well written and printed contribution to the cause of education. And no parent who indulges high expectations for the future of his children, will fail to secure a copy.

PEARL: A CENTENNIAL POEM. By Emma May Buckingham, author of "A Self-made Woman." 16mo, fancy cloth. Price $1.

Encouraged by the success attendant upon the publication of her story of the "Trials and Triumphs of Mary Idyl," Miss Buckingham now invites attention to her recent effort in verse. Pearl Malley is the heorine, Paul Leighton the hero of the lay. Of course, as in all serial poems, the tale is one of love, but there are in "Pearl" so many transitions of sentiment, "from grave to gay, from lively to severe," and all in keeping with the progress of events, that the reader is interested and pleased, in spite of himself. The poem is short—as all poems should be, and as all good poems usually are—its language of the imagination, suggesting to the imagination of the reader many details in its course which, while necessary to a complete understanding of the story, need not to be detailed. For ourselves, we like a poetic style which leaves a great deal unsaid, and is concise in what is actually related.

The poetic spirit gleams in "A Self-made Woman," and we were not surprised when the advance sheets of "Pearl" came to our hands. The new work is better done; the author feels more at home in tracing the measured lines, and they who welcomed the first will be glad to read this second book. There are charms of vivacity and feeling pervading many of the passages which make their reading exceedingly agreeable; in fine, the whole poem contrasts with the majority of the published versifications of the day, in its freedom from a trace of the monotonous and doleful. It brightens with its progress, and is happy in its close.

"And while wedding bells are chiming with delight,
Reader, I will cease my rhyming—say 'Good-night.'"

PUBLICATIONS RECEIVED.

THE NEW YORK SOCIETY FOR THE PREVENTION OF CRUELTY TO CHILDREN. Second Annual Report, 1877. A review of the work of a most important movement started by the more philanthropic of the citizens of New-York. The cases mentioned which have come to the notice, and required the interference of the Society, show how necessary such an organization is to the protection of little waifs, and to the moral improvement of society. Mr. John D. Wright is President; office of the Society, 860 Broadway.

THE NORTH AMERICAN JOURNAL OF HOMŒOPATHY for February contains several well-considered articles.

SEVENTY-FIRST ANNIVERSARY CELEBRATION of the New England Society in the city of New York. A neatly prepared report of the exercises of an interesting affair.

MONTHLY WEATHER REVIEW for December, omitted in our last number, describes several interesting occurrences of that month. The most prominent features were: 1. The large number and very rapid movement of the areas of low pressure. 2. The low temperature which has averaged from 2° to 8° below the average for many years throughout the country east of the 100th meridian, as was anticipated in the *Review* for September; on the Pacific slope the month has been warmer than usual. 3. The absence of any area of very high pressure west of the Mississippi. 4. The remarkable meteor of the 21st. 5. The interesting solar halo of December 23d. 6. The absence of rain on the Pacific Coast.

THE PHYSICAL, MORAL, AND SOCIAL EFFECTS OF ALCOHOLIC POISON as a Beverage and as a Medicine. By J. H. Kellogg, M.D. Battle Creek, Mich. A compact little treatise on the most important topic of the time, not even excepting that of the electoral count, and at once clear, cogent, and creditable to its hygienic author. Price, 20 cents.

MUTUAL CRITICISM. Published at the office of the *American Socialist*, Oneida, N.Y. Is a little pamphlet which tells how they treat the cases of members of the Community requiring correction or discipline. It is amusing, yet instructive in many points. The Communists have taken the right direction in mental medicine and hygiene.